SECOND

INTERNATIONAL CONGRESS

ON

SCHOOL HYGIENE.

LONDON, 1907.

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HIS MOST GRACIOUS MAJESTY THE KING.

TRANSACTIONS.

VOL. II.

EDITED AND ARRANGED BY THE HONORARY GENERAL SECRETARIES,

JAMES KERR, M.A., M.D., D.P.H.,

E. WHITE WALLIS, F.S.S.

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SCHOOL HYGIENE.

LECTURE TO THE CONGRESS.

BEZIEHUNGEN ZWISCHEN MEDIZIN UND PAEDAGOGIK.

Von Professor GRIESBACH, M.D., Ph.D.

Zu einer Zeit, in der die Frage nach einer hygienischen Jugenderziehung im Vordergrunde des allgemeinen Interesses steht und in allen zivilisierten Ländern lebhaft diskutiert wird, zu einer Zeit, in der Aerzte und Pädagogen in gemeinsamer Arbeit bestrebt sind, die Schulorganisation in einwandfreie Bahnen zu lenken und das Unterrichtswesen auf physiologischen und hygienischen Grundsätzen aufzubauen, ist es wohl angebracht, die zwischen Pädagogik und Medizin bestehenden Beziehungen zu erörtern und unter Berücksichtigung der momentan obwaltenden Verhältnisse, aber losgelöst von einseitiger Anschauungsweise, die bestimmten Richtungslinien zu entwerfen, die für die gemeinsamen Bestrebungen der Pädagogen und Aerzte in Betracht kommen.

Die Fühlung, die zwischen Schule und Elternhaus erforderlich ist, die gegenseitige Abhängigkeit beider, sowie die Einflüsse, die dem Volkstum und dem Staatswesen aus der Unterweisung, Erziehung und dem Gesundheitszustande der Jugend erwachsen, lassen es gerechtfertigt erscheinen, das in Rede stehende Thema in breitester Oeffentlichkeit zu besprechen. Derartige Gesichtspunkte waren es, die mich zu meiner heutigen Vorlesung veranlasst haben.

Es kann keinem Zweifel unterliegen, dass der Schulbetrieb mancherlei Gefahren für die Gesundheit der daran Beteiligten, sowohl der Lehrer als auch der Schüler, mit sich bringt. Die Schüler sind diesen Gefahren aber besonders ausgesetzt. Dies leuchtet ohne weiteres ein, wenn man sich vergegenwärtigt, dass die Anforderungen, welche der Schulbetrieb hinsichtlich der Dauer und Intensität seiner Wirkung an die körperlichen und geistigen Kräfte stellt, für die Schüler erheblich grösser sind als für die Lehrer, wenn man ferner bedenkt, dass sich der Schülerorganismus noch in der Entwickelung befindet und daher gegen schädliche Einflüsse noch wenig Widerstandsfähigkeit besitzt. Aus diesen Gründen handelt es sich bei der Erörterung der Beziehungen zwischen Medizin und Pädagogik in erster Linie um den Schutz der Jugend in der Schule, und diesem sind daher auch meine heutigen Betrachtungen hauptsächlich gewidmet. Die Gefahren, welche das Schulleben zeitigt, entspringen mancherlei Ursachen. Nur durch gemeinsame Arbeit der Pädagogen und Aerzte können sie erkannt und beseitigt werden.

Es hat allerdings lange gedauert, bis die Pädagogen und Schulverwaltungen dies eingesehen und sich von der Notwendigkeit überzeugt haben, *dass über allen schultechnischen Massnahmen und Zielen die Gesundheit der Jugend steht.* Es gibt selbst heute noch unter den Schulmännern etliche, die des Beistandes der Aerzte und Hygieniker im Schulbetrieb nicht zu bedürfen glauben und die Mitarbeit derselben als Eingriff in ihre Rechte und als Beeinträchtigung ihrer Kompetenzen erachten. Ein derartiger Standpunkt erschwert natürlich ein ersprissliches Zusammenwirken von Medizin und Pädagogik, erschwert die Nachforschungen nach den Gefahren im Schulbetrieb und die Erkennung und Beseitigung von Krankheitsursachen und Krankheitserscheinungen der Schuljugend. *Unkenntnis derselben aber ist eben so schlimm als ihre Unterschätzung.* In allen zivilisierten Ländern ist man daher eifrig an der Arbeit, die Hindernisse, welche sich dem Zusammenwirken der Pädagogen und Aerzte in den Weg stellen, zu beseitigen. Nationale und internationale hygienische Kongresse und schulhygienische Vereine, wie sie bereits in Deutschland, Frankreich, Holland, Dänemark, Ungarn, in der Schweiz und in Nordamerika bestehen, tragen vieles dazu bei.

Es frägt sich, welches sind eigentlich die Gebiete, auf denen die gemeinsame Arbeit der Schulmänner und Aerzte in Betracht kommt. Die Antwort lautet: *Sämtliche Gebiete,* aus denen sich das Schulwesen zusammensetzt. Da sind zunächst die Schulgebäude und ihre Einrichtungen zu erwähnen. Hier stehen als wichtigste Forderungen obenan: Geräumige Anlage, reine Luft, viel Licht, brauchbare Heizung und Ventilation, gesunde Umgebung und *peinliche* Sauberkeit. Sachgemäss zu beurteilen vermag diese Dinge nur der hygienisch durchgebildete Mediziner. *Die tägliche reiche Erfahrung* der Pädagogen kann ihn bei dieser Beurteilung aber ganz wesentlich unterstützen. Wie notwendig es ist, die Gebäude und ihre Einrichtungen auf ihre hygienische Brauchbarkeit zu prüfen, das zeigen meine vor kurzem angestellten Nachforschungen in 581 Volks- und Mittelschulen und in 300 höheren Lehranstalten. Von den in Tab. I. (p. 416) aufgeführten zahlreichen Mängeln, auf die näher einzugehen die Zeit verbietet, möchte ich hier nur auf diejenigen besonders hinweisen, durch die eine unzureichende Lichtzufuhr erzeugt wird. Dieser Mangel an Licht im Verein mit der lang dauernden Nahearbeit der Schüler, dem zu kleinen Druck der Schulbücher und Wandtafeln, der unzweckmässigen Beschaffenheit der Schreibhefte sowie einer ungeeigneten Schriftform, tragen wesentlich die Schuld an der grossen Zahl von Sehstörungen der Schüler. Nach neueren Angaben in Deutschland finden sich Refraktionsanomalien in den unteren Klassen höherer Lehranstalten bis zu 15 Proz., und in den oberen Klassen sind 85 bis 90 Proz. der Schüler damit behaftet.

Nach den Untersuchungen Herm. Cohn's und Paul Schubert's entspricht ein gedrucktes Schulbuch *nur dann* den Forderungen der Augenhygiene, wenn die Approche zwischen benachbarten Buchstaben nicht weniger als 0·75 mm., zwischen benachbarten Wörtern nicht weniger als 2 mm beträgt. Der Durchschuss, d.h. die Entfernung der Zeilen von einander, darf nicht geringer als 2,5 bis 3 mm. sein und die Zeilenlänge nicht mehr als 80 bis 100 mm. umfassen. Verstösse gegen diese Anforderungen finden sich massenhaft in den Schulbüchern *aller* Nationen.

Nicht nur der Druckschrift, sondern auch der Schreibschrift ist die

grösste Aufmerksamkeit zuzuwenden, wenn nicht Kurzsichtigkeit sich schon in frühem Alter einstellen soll. Frakturschrift und Frakturdruck, die wohl fast nur noch in der deutschen Sprache zur Anwendung kommen, sind schwerer lesbar als die Antiqua. Fraktur schreibt sich überdies langsamer, weil sie vielmehr Takte und Absetzungen erfordert. Das geschriebene Frakturalphabet, das mit Unrecht ein deutsches genannt wird, hat 107 Takte, während das lateinische deren nur 68 zählt. Für ein sogenanntes deutsches *m* braucht man 7 Takte, für ein lateinisches *m* nur 3. Die Buchstaben der Fraktur besitzen im ganzen 36 % mehr Druckstellen als diejenigen der Antiqua. Für den alleinigen Gebrauch der Antiqua spricht der Umstand, dass ihre Erlernung viel weniger Zeit und Mühe erfordert als die der Fraktur. In Deutschland lernen die Kinder vier Alphabete: Fraktur klein und gross, Antiqua klein und gross. Da das Auge beim Schreiben nicht weniger als 30 cm. von der Zeile entfernt sein soll, so gebührt ferner der *Steilschrift vor der Schrägschrift* der Vorzug. Seggel hat den Abstand der Nasenwurzel von der Zeilenfolge bei 6,000 Schulkindern gemessen. Für Schrägschrift fand er 19 bis 27 cm., für Steilschrift 24 bis 30 cm. Die kleineren Zahlen entfallen auf jüngere Kinder. Diese müssen sich nämlich der Schrift mehr nähern als die älterern,weil ihnen die Buchstaben noch nicht geläufig sind, sie also möglichst grosse Bilder auf der Netzhaut ihres Auges erzeugen müssen. Für die Kleinen ist aber das Nahesehen *besonders* gefährlich, weil ihr Auge noch wenig Widerstandskraft besitzt. Dazu kommt noch, dass bei der Schrägschrift viel häufiger eine schlechte Körperhaltung eingenommen wird, als bei der Steilschrift. Man hat zwar der Steilschrift den Vorwurf gemacht, dass sie unschön sei, langsamer von statten gehe und namentlich im öffentlichen Verkehr nicht geduldet werde. Der Arnheimer Augenartz Lans hat eine hierauf bezügliche Umfrage in 80 Geschäftshäusern Hollands gehalten. Es hat sich herausgestellt, dass in den Geschäften die steil schreibenden Angestellten *schneller arbeiten* als die schräg schreibenden und dass steil schreibende ihrer Schrift wegen keineswegs von der Anstellung ausgeschlossen sind. Hinsichtlich der Druck- und Schreibschrift haben sich übereinstimmende Ansichten zwischen Pädagogen und Medizinern leider noch wenig ergeben. Es ist dies ein Gebiet im Schulwesen, in welches sich die Pädagogen nicht gerne hineinreden lassen, leider zum Nachteil der lernenden Jugend.

Der Unterrichtsbetrieb in den höheren Schulen erfordert eine nicht unbedeutende Zahl von Schulbüchern. Ich habe bei Schülern und Schülerinnen verschiedener Klassen Erhebungen darüber angestellt, wieviele Bücher sie täglich zum Unterricht mitzunehmen haben. In den mittleren Klassen belief sich die Zahl durchschnittlich auf 10 bis 12 täglich. Bei 12- und 13-jährigen Kindern betrug *die Last*, die Transporttasche eingerechnet, bis zu 7 Kilo., d.h. ein Viertel bis ein Fünftel des Körpergewichts der Träger. Eine derartige täglich wiederkehrende Last, auf dem Rücken oder am Arme getragen, zumal auf weiten Schulwegen, trägt nicht unerheblich zur Verbiegung der Wirbelsäule bei, von denen ich in mehreren Schulen bis zu 17 und 20 % konstatieren konnte.

Als die Schulleitung auf diese Tatsache aufmerksam gemacht wurde, ordnete sie an, dass Bücher, die von einem zum anderen Tage nicht bei häuslichen Arbeiten gebraucht werden, im Klassenschrank aufzubewahren seien. Ausserdem wurden bei dieser Gelegenheit sämtliche

unpassende Subsellien aus den Klassenzimmern entfernt. Leider trifft man ein derartiges Entgegenkommen nicht überall.

Einen der wichtigsten Punkte der ärztlichen Mitarbeit im Schulbetriebe bildet die körperliche Untersuchung der Schulkinder bei ihrer Aufnahme und im Verlaufe der einzelnen Schuljahre. Durch solche Untersuchungen hat sich herausgestellt, dass bei den Schülern vielfach Erkrankungen vorkommen, von deren Vorhandensein weder die Befallenen, noch ihre Angehörigen und Lehrer eine Ahnung haben, die aber, unbeachtet und unbehandelt, über kurz oder lang die schwersten Folgen nach sich ziehen können. Mit welchem Prozentsatz Krankheitserscheinungen bei den Schulkindern auftreten, darüber gibt Tab. II. Aufschluss. Es soll gleich betont werden, dass die ärztliche Untersuchung am *unbekleideten* Körper vorzunehmen ist, da sich manche Fehler der Erkennung sonst entziehen, wie aus der Tab. II. hervorgeht (p. 416).

Seitdem man eingesehen hat, wie notwendig die ärztliche Untersuchung der Neuaufgenommenen und Fortgeschrittenen ist, werden in allen Ländern besondere Schulärzte angestellt. In Deutschland ist die Einrichtung des schulärztlichen Dienstes am weitesten vorangeschritten. Dort gibt es zur Zeit über 300 Orte mit gegen 2,000 Schulärzten, unter denen sich sogar *Spezialisten:* Schul-Augen-, Ohren- und Zahn-ärzte befinden. Aber auch in anderen Staaten, wie in den Ländern der österreichischen Krone, in Holland, in den skandinavischen Ländern, in Frankreich, Belgien, in der Schweiz, in England und in aussereuropäischen Staaten geht es mit der Anstellung von Schulärzten voran. Leider fehlt es noch vielfach an einer *einheitlichen* Regelung der Dienst- und Untersuchungs-vorschriften. In einzelnen Staaten ist der Wirkungskreis der Schulärzte grösser als in Deutschland, indem nicht nur die Kinder der *Volksschulen,* sondern auch die der *höheren Lehranstalten* untersucht werden. Es ist in der Tat nicht einzusehen, warum die höheren Schulen an dieser segensreichen Einrichtung nicht teilnehmen sollen. Gerade in den höheren Schulen treten manche Krankheitserscheinungen, ohne dass sie rechtzeitig beachtet werden, häufiger und in stärkerem Grade auf als in den Volksschulen, weil die Anforderungen in ersteren grösser sind und weil die Sitzzeit und der Schulbesuch daselbst viel länger dauern. Ich verweise in dieser Hinsicht auf die Schularztberichte des Herzogtums Sachsen-Meiningen, dem einzigen deutschen Staate, in dem bisher der schulärztliche Dienst auch auf die höheren Schulen ausgedehnt wird.

Auch aus ausserdeutschen Staaten laufen Berichte ein, aus denen ersichtlich ist, dass sich Krankheitserscheinungen in höheren Schulen oftmals höher beziffern als in Elementarschulen. Als Grund dafür, dass die *meisten höheren Lehranstalten Deutschlands* ihre Pforten dem Schularzte *verschliessen,* wird häufig geltend gemacht, dass der Lehrplan und die ganze Organisation die schulärztliche Tätigkeit nicht vertrage, und dass dieselbe zu Unbequemlichkeiten und Behinderungen im Schulbetrieb, sowie zu Unannehmlichkeiten zwischen Lehrern und Aerzten führen würde. Derartige Behauptungen sind völlig aus der Luft gegegriffen. Die Erfahrungen in Sachsen-Meiningen und in ausserdeutschen Staaten beweisen, dass die Befürchtungen unzutreffend sind. Die *allseitige* Einführung des schulärztlichen Dienstes in höheren Lehranstalten, ohne deren Verwirklichung ein erfolgreiches Zusammenwirken zwischen Pädagogik und Medizin sich kaum denken lässt, ist also leider

bisher an dem Widerstand eines Teiles der Schulmänner und Schulverwaltungen in Deutschland gescheitert.

Ich betone jedoch, dass es nur ein verhältnismässig kleiner Teil derselben ist, von denen dieser Widerstand ausgeht. Unter nach Hunderten zählenden Antworten, die ich auf eine im Jahre 1903 an zahlreiche Lehrer höherer Schulen in Deutschland gerichtete Anfrage betreffs Einrichtung des schulärztlichen Dienstes in denselben erhalten habe, äusserten sich *fast* 80 % in zustimmendem Sinne. Auch auf Lehrerversammlungen hat man sich neuerdings in diesem Sinne ausgesprochen.

Die Beziehungen zwischen Medizin und Pädagogik erstrecken sich aber nicht nur auf die Hygiene der Schulgebäude und ihrer Einrichtungen, das Unterrichtsmaterial und dessen Verwendung, sowie die ärztliche Untersuchung der Kinder, sondern sie müssen auch in die Organisation und Methodik des Unterrichts hineingetragen werden, denn *gerade hier* ist das Zusammenwirken der Lehrer und Aerzte von grösster Wichtigkeit.

Die geistige Nahrung soll sich der Entwickelung des Gehirns anpassen. Das jugendliche Gehirn ist in allen seinen Teilen noch zart und darf daher mit geistiger Speise nicht überfüttert werden. Deswegen sollte man die Kinder *nicht zu früh* zu regelmässiger geistiger Arbeit anhalten, auch wäre es besser, den Eintritt in die Schule etwas später anzusetzen, als es gewöhnlich geschieht. Des weiteren ist daran zu denken, dass aller Unterricht sich auf physiologischer Basis aufzubauen hat, dass die Sinnentätigkeit und die Hand geübt werden müssen, bevor man an schwierige abstrakte Gebiete herantritt. Dieses Prinzip wurde von Ihrem berühmten Landsmanne John Locke vertreten. Sein Losungswort war : *Nihil est in intellectu, quod non prius fuerat in sensu*—" Nothing is in mind, which was not before in sense."

Wir wissen *heute*, dass es geistige Tätigkeiten gibt, an denen sich *nur gewisse* Abschnitte des Gehirns beteiligen. Jeder Fortschritt in der Erkenntnis der Beteiligung der einzelnen Hirngebiete an geistigen Vorgängen ist zweifellos an die Forschungsergebnisse der Anatomie und Entwickelungsgeschichte, der experimentellen Physiologie und Pathologie des Gehirns geknüpft. Aus diesem Grunde sind die Fortschritte der Pädagogik von denen der Hirnforschung abhängig. Nur in dieser Abhängigkeit wird die Pädagogik zur Vollkommenheit gelangen. Die sogenannten Sinneszentren, die beim Menschen etwa ein Drittel der Gehirnoberfläche einnehmen, setzen das Organ mit der Aussenwelt in Verbindung. Zwischen diesen Sinneszentren liegen Gebiete zwei Drittel der Oberfläche umfassend, die hauptsächlich den interzentralen Energieverkehr vermitteln und die Gedankenassociation übernehmen. Aber wir wissen auch, dass sogar die beiden Hälften des Gehirns sich in Bezug auf geistige Tätigkeit verschieden verhalten. Plastische Vorstellungen, die Phantasie, praktische Arbeiten, Handfertigkeit und Gymnastik sind wesentlich an die rechte Hirnhälfte geknüpft. Die Sprache und derjenige Teil der Mathematik, bei dem die Anschauung zurücktritt, insbesondere das gewöhnliche Rechnen und die Algebra, wird durch die linke Hälfte des Gehirns vermittelt. Die Sprache ist nun bei allen Erziehungsmethoden und Unterrichtsfächern in erster Linie beteiligt. Naturgemäss wird also die linke Hirnhälfte besonders stark beansprucht. Das ist auch in der Schule der Fall, vor allem beim Sprachunterricht. Da nun Sprachen und Mathematik in den Schulen den grössten Teil der Unterrichtszeit umfassen, so ist es klar, dass das Gehirn

schon in früher Jugend, falls die Ausbildung der rechten Hirnhälfte vernachlässigt wird, sehr einseitig beansprucht und nicht selten überlastet wird. Aller Unterricht in Schule und Haus sollte also auf Beteiligung der verschiedenen Hirnabschnitte bei geistigen Vorgängen bedacht sein. Namentlich sollte er in früher Jugend nicht vorwiegend abstrakt, sondern mehr konkret betrieben werden. Anschauung und Vorstellung sollten in den Vordergrund treten und unter Berücksichtigung beider sollte die linguistische Schulung vor allem in der Muttersprache erfolgen. Mit 9 bis 10 Jahren besitzt ein Kind noch nicht die nötige Fertigkeit und Gewandtheit in seiner Muttersprache, um ohne Schädigung seiner weiteren Ausbildung in derselben und der Entwickelung der Funktionen seiner gesamten Hirnrinde fremde Sprachen zu erlernen, zumal wenn diese mit einer noch grösseren Stundenzahl auftreten als die Muttersprache und vorwiegend nach grammatischer Methode betrieben werden.

Diese Ausblicke zeigen, wie gerade in der Lehrverfassung die Beziehungen zwischen Pädagogik und Medizin sich am innigsten gestalten müssen, um die Jugend und damit die Gesamtheit einer Nation vor Schädigung zu bewahren.

Prüfen wir nun, wie es mit diesen Beziehungen im Unterricht in Wirklichkeit bestellt ist, so ergibt sich, dass dagegen in vielen europäischen Staaten arg gesündigt wird, das gerade das Gegenteil von dem empfohlen und gepflegt wird, was naturgemäss ist. In einzelnen Gymnasien der Schweiz setzt das Latein in der untersten Klasse mit 10 bis 11, das Griechische bald darauf mit 7 Wochenstunden ein, während die Stundenzahl beider nach oben hin abnimmt. In österreichischen Kronenländern beginnt das Latein mit 8 Stunden. Aehnlich liegen die Verhältnisse in Belgien, Holland, Italien, in einzelnen Schulen Russlands. Ich kann hier natürlich nicht die Lehrpläne aller einzelnen Staaten vorführen. Sie haben aber hier auf Tab. III. und IV. (p. 417) den Lehrplan eines deutschen Gymnasiums und Realgymnasiums. Die Muttersprache tritt gleich vom ersten Jahreskurs ab durch sämtliche spätere Schuljahre hindurch erheblich hinter dem fremdsprachlichen Unterricht zurück. Ueberhaupt dominiert in diesen Lehrplänen schon in den unteren Klassen das sprachliche und mathematische Moment. Welch kümmerliches Aequivalent bilden die 3 in den Tabellen nicht besonders aufgeführten wöchentlichen Turnstunden, die wenigen Stunden in der Naturkunde und im Zeichnen gegenüber den abstrakten Gebieten. Diese letzteren treten im Gymnasium mit 68 (Latein) und 36 (Griechisch) und 20 (Französich) und 17 (Geschichte) und 34 (Mathematik) und im Realgymnasium mit 49 (Latein) und 29 (Französisch) und 18 (Englisch) und 17 (Geschichte) und 42 (Mathematik) Wochenstunden auf. Das schlimmste dabei ist, ähnlich wie in manchen anderen Ländern, die hohe Stundenzahl der Abstracta in den frühesten Jahreskursen.

Der Umstand, dass das Realgymnasium unter diesen Verhältnissen das Zeichnen durch alle Klassen fortführt und die Naturwissenschaften in den höheren Klassen verstärkt, kann kaum als Fortschritt betrachtet werden. Um nichts günstiger liegen die Dinge in den Oberrealschulen, deren Lehrplan Tabelle V. zeigt (p. 418). Zwar wird die Muttersprache etwas weniger stiefmütterlich behandelt, aber daneben tritt schon in der untersten Klasse und in den folgenden Jahreskursen das Französische mit 6 Stunden auf und Rechnen und Mathematik sind stärker bedacht als in den beiden anderen Anstalten. In Tab. VI. (p. 418) haben Sie

eine andere Form der Lehrverfassung einer Oberrealschule. Wesentliche Unterschiede sind nicht vorhanden, nur wird die Gymnastik noch weniger, nämlich nur mit 2 Stunden bedacht.

Die Tabelle VI.A (p. 419) stellt den Lehrplan der höheren Mädchenschule einer süddeutschen Stadt dar. Seine Belastung ist keine geringe.

Einen nicht unwesentlichen Fortschritt zu Gunsten der Physiologie und Hygiene der Jugend finden wir in den Lehrplänen Bulgariens, Rumäniens, Schwedens und Norwegens und der sogenannten Reformschulen Deutschlands, von denen ich Ihnen in Tab. VII. (p. 419) einen Plan nach Frankfurter, in Tab. VIII. (p. 420) einen solchen nach Altonaer System vorlege. Der Frankfurter Plan bezieht sich auf Gymnasien und Realgymnasien, der Altonaer Plan auf Realgymnasien und auf Realschulen, in denen die 3 oberen Klassen fehlen. Ein Fortschritt besteht darin, dass das altsprachliche Moment in dem Unterbau fehlt, die Schüler also im Vergleich zu denjenigen, die dem Gymnasium und Realgymnasium nach altem System angehören, bis zum 13. bezw. 14. Lebensjahre weniger belastet sind. Allerdings tritt das Französische im Unterbau wie in der Oberrealschule gleich mit 6 Wochenstunden auf.

Einen weiteren Fortschritt, insbesondere pädagogischer und erzieherischer Art, könnte man darin erblicken, dass die Schüler sich erst nach dem 3. Jahreskursus zu entscheiden brauchen, welchen Studiengang sie einschlagen wollen, während derselbe bei den vorher genannten Anstalten gleich von Anfang an fest vorgeschrieben ist. Allein bei Lichte betrachtet erfolgt das Hinaufschieben dieser Entscheidung nicht weit genug, Schüler von 13 und 14 Jahren werden in den meisten Fällen noch unschlüssig sein, welchem Beruf sie sich später widmen wollen.

Einer der grössten Nachteile der Reformschule liegt darin, dass die geistige Beanspruchung dicht vor Eintritt der Pubertät und zu einer Zeit, in der sich das Wachstum des Organismus besonders bemerklich macht, eine sehr bedeutende wird. Wir sehen also, dass mit diesen Abänderungen den physiologischen und hygienischen Anforderungen noch nicht genüge geleistet wird. Dieser letztere Umstand macht sich auch darin bemerklich, dass in allen höheren Schulen Deutschlands und zum Teil auch in den Schulen anderer Staaten die tägliche geistige Beschäftigung zu viel Zeit beansprucht, dass nicht genügend Zeit zur körperlichen Betätigung und Kräftigung übrig bleibt.

Was sind 2 bis 3 Turnstunden für die Ausbildung zu körperlicher Kraft und Gewandheit gegenüber den 25 bis 34 Sitzstunden in der Klasse und den 12 bis 20 und mehr Sitzstunden, welche die Schüler auf die Anfertigung ihrer häuslichen Schularbeiten verwenden müssen. Es ist klar, dass die Zeit, die auf körperliche Uebungen verwandt wird, zu der, welche die geistige Ausbildung beansprucht, in einem schreienden Missverhältnis steht. Dazu komt ferner noch, dass die Turnstunden sehr oft vor, beziehungsweise zwischen wissenschaftlichen Lehrstunden liegen, wodurch, wenn ihre Anforderungen an den Körper nicht sehr mässige bleiben sollen, letztere ganz erheblich beeinträchtigt werden. Gymnastische Uebungen im Lehrplan der Schulen haben einem doppelten Zweck zu dienen. Sie sollen nicht nur die körperliche Entwickelung im allgemeinen und die Kraft und Ausdauer der einzelnen Organe im besonderen fördern, sondern sie sollen auch ein Mittel zum Ausgleich geistiger Anstrengungen sein. Von der Schulverwaltung wird dieser Zweck oft verkannt. Sie lässt die elementarsten physiologischen Vorgänge un-

berücksichtigt. Man übersicht vollkommen, dass nicht nur eine rein geistige Tätigkeit, sondern auch anstrengende Körperübungen Gehirnermüdung mit sich bringen, die um so bedeutender auftritt, je geordneter und schwieriger die auszuführenden Bewegungen sich gestalten. Sehr oft mangelt dem Gehirn nach einer flotten Turnstunde diejenige Erregbarkeit, welche ihm für wissenschaftlichen Unterricht notwendig ist, damit sich die Aufmerksamkeit konzentriere und sich das Bild der Objekte, auf die sie gerichtet sein soll, dem Gedächtnis einpräge. Mancher Lehrer hat sich schon darüber beklagt, dass die Schüler nach dem Turnen während des ersten Teiles des Unterrichts in wissenschaftlichen Fächern keinen vernünftigen Gedanken zu fassen vermögen, und dass selbst die Hand kaum imstande sei, die Feder korrekt zu führen. Auch darf nicht ausser Acht gelassen werden, dass die Schüler sich nach dem Turnen, falls noch eine andere Stunde folgt, im erhitzten Zustande und mit erregter Atmung in den Pausen auf dem zugigen und staubigen Korridor und Schulhofe aufhalten müssen, wodurch sie Erkrankungen ausgesetzt werden.

Es ist daher eine gefährliche Lehre, wenn behauptet wird, dass das Turnen vor oder zwischen wissenschaftliche Stunden dem Körper ganz besonders zuträglich sei und den Geist erfrische. Uebrigens schädigt sich die Schule, pädagogisch gesprochen, selbst, wenn sie den Turnunterricht in die Morgenstunden legt, in denen das Gehirn nach ausreichendem Nachtschlaf im allgemeinen so ausgeruht ist, dass es sich zur Aufnahme geistiger Speise vortrefflich eignet. Dass es immer noch Schulmänner, ja sogar Mediziner gibt, die die Behauptung aufrecht erhalten, Turnübungen vor oder zwischen wissenschaftlichen Lehrstunden seien sehr nützlich und geistig anregend, beweist, wie wenig die Frage bisher studiert und erörtert worden ist.

Damit das Missverhältniss zwischen Geistes- und Körpergymnastik in der Schule beseitigt wird, geistige und körperliche Tätigkeit in geeigneter Weise verteilt werden können, und der Nutzen der letzteren nicht imaginär bleibt, muss wiederum gemeinsame Arbeit zwischen Pädagogen und Aerzten gemacht werden, um die Lehrpläne inbezug auf die Fülle des Stoffes zu reformieren. Mancher Ballast liesse sich daraus entfernen. Dadurch liessen sich die Pensa einengen und wenn dies geschieht, kann auch die Zahl der wöchentlichen Unterrichtsstunden vermindert werden. Ganz abgesehen von dem Mangel an Einheitlichkeit in betreff der Stundenzahl in den einzelnen deutschen Bundesstaaten, hat Deutschland in seinen Schulen die höchste Pflichtstundenzahl von allen Ländern Europas, worüber die Tab. IX. (p. 421) Aufschluss gibt. Durch Herabsetzung der Stundenzahl lässt sich die Beschränkung des Unterrichts auf den Vormittag ermöglichen. Diese ungeteilte Schulzeit besteht bereits in vielen Orten. Damit aber der jugendliche Organismus bei solchem Verfahren nicht durch eine zu lang dauernde Beanspruchung geschädigt wird, darf der Unterricht in keinem Fach von Pause zu Pause länger als 40 oder höchstens 45 Minuten dauern. Physiologische und pädagogische Beobachtungen haben den unanfechtbaren Nachweis erbracht, dass Schüler ihre Aufmerksamkeit ohne Unterbrechung kaum länger als 35 bis 40 Minuten zu konzentrieren im Stande sind. Mr. Chadwick und andere haben nach eingehenden Versuchen für die Dauer der Aufmerksamkeit im Alter von 7 bis 10 Jahren 20 Minuten, von 10 bis 12 Jahren 25 Minuten und von 12 bis 18 Jahren 30 Minuten gefunden. Ein 40 bis 45 Minuten überstei-

gender Schulunterricht ist, pädagogisch gesprochen, wertlos. Vom ärztlichen Standpunkte aus betrachtet ist er eine unverantwortliche Belastung des jugendlichen Organismus.

Der 40-Minuten-Unterricht oder die Kurzstunde, wie er auch genannt wird, ist neuerdings bereits eingeführt worden und hat sich ausgezeichnet bewährt. So ist es beispielsweise im Gymnasium und in der Industrieschule der schweizerischen Stadt Winterthur. Dort sind die Erfolge so vortreffliche, dass auch die Städte Bern und Zug seine Einführung beschlossen haben.

Auf eine unlängst versandte, den ungeteilten Unterricht und die Kurzstunde betreffende Denkschrift des Deutschen Vereins für Schulgesundheitspflege haben sich unter den zahlreichen, von Leitern höherer Lehranstalten eingelaufenen Antworten 200 dahin ausgesprochen, dass diese Neuerung pädagogisch eine durchaus zweckmässige und hygienisch eine höchst vorteilhafte Einrichtung sei. Selbst dann, wenn der Lehrstoff eine Reduktion nicht erfahre, lasse sich, weil Lehrer und Schüler erheblich frischer bleiben, mit dem 40-Minuten-Unterricht dasselbe erreichen, wie mit den bisherigen Vollstunden. Bei Anwendung der neuen Zeiteinteilung werden täglich im Höchstfalle 6 Kurzstunden mit einer Gesamtpausenlänge von 55 Minuten in 4 Zeitstunden und 55 Minuten bezw. in 5 Zeitstunden erledigt.

Für ältere Schüler sollte der Unterricht nie vor 8, für jüngere bis zum vollendeten 10. Jahre nie vor $8\frac{1}{2}$ oder 9 Uhr beginnen.

In manchen Städten wird der Morgenunterricht im Sommer schon um 7 Uhr angesetzt. Es hat sich durch physiologische Untersuchungen herausgestellt, dass bei dieser Einrichtung die Nachtruhe der Zöglinge häufig zu kurz kommt, so dass das Nervensystem nicht genügend ausgeruht hat und viele von ihnen unausgeschlafen in den Unterricht eintreten. Schüler in Grossstädten, die einen weiten Schulweg haben, und solche, die von auswärts kommen, müssen, um rechtzeitig um 7 Uhr einzutreffen, oft schon um 5 Uhr und noch früher aufstehen. Dasselbe trifft für diejenigen zu, die vor Beginn der Schule noch einen Teil ihrer häuslichen Schulaufgaben erledigen. Endlich bringt eine derartige Einrichtung nicht selten allerlei Störungen im Wohlbefinden der Jugend mit sich. Es fehlt letzterer an der nötigen Zeit, um die Morgentoilette sorgfältig und regelmässig zu erledigen; das Frühstück wird nur halb verzehrt oder hastig verschlungen. Wenn man nun den Stundenplan in der angegebenen Weise aufbaut, dann lässt sich auch im Schulbetrieb genügend Zeit für die körperliche Entwickelung der Jugend erübrigen.

Die gymnastichen Uebungen könnten 5 bis 6 mal in der Woche in der letzten Kurzstunde der ungeteilten Schulzeit stattfinden. Ausserdem liesse sich für körperliche Betätigung noch ein obligatorischer Spielnachmittag einrichten. Eine erhebliche Einschränkung der privaten Arbeits- und Erholungszeit der Schüler würde dadurch nicht entstehen. England hat die Notwendigkeit ausgiebiger Körperbewegung für die Schuljugend schon längst eingesehen und diese Beschäftigung, die andere Völker über Bord werfen, sich zu eigen gemacht. Mit der Einrichtung von Bewegungsspielen folgt man den Winken der Natur. Das Spiel ist der Ausgangspunkt für diejenige körperliche Betätigung, in der sich das jugendliche Leben äussert, wenn es sich frei entfaltet. Durch reichliche Gymnastik zu passender Zeit wird nicht nur die körperliche Entwickelung im allgemeinen gefördert, sondern es wächst auch die Kraft und Ausdauer

der Organe der geistigen Tätigkeit, der Intelligenz und des Willens und hierin liegt ein wirksames Mittel gegen physische und psychische Degeneration.

Die aus dem Mangel an Bewegung und der übermässigen Heranziehung zu geistiger Arbeit resultierende Abnahme an körperlicher Kraft und Gewandtheit der Jugend beeinträchtigt zweifellos die Wehrhaftigkeit einer Nation. Es kann daher nicht überraschen, wenn der Prozentsatz an Nichtwehrfähigen, insbesondere aus denjenigen Volksschichten, denen das Schulmaterial der höheren Schulen entstammt, im Steigen begriffen ist. In Tab. X. (p. 420) habe ich, soweit mir amtliche Quellen zugänglich waren, aus den letzten Jahren den Prozentsatz derjenigen jungen Leute aufgeführt, die nach ärztlicher Untersuchung unfähig zum Militärdienst befunden wurden.

Für Deutschland muss ich mich an die Mitteilungen halten die der preussische Oberstabtarzt Dr. Werner auf der Berliner Schulkonferenz vom Jahre 1890 machte. Werner betonte besonders, dass die Zahl der mit hochgradiger Kurzsichtigkeit behafteten Gestellungspflichtigen bei den Einjährig-Freiwilligen um 20 % höher sei als bei den zum Einjährigendienst Nichtberechtigen, und dass sich unter den in den Dienst wirklich eingestellten Einjährigen noch 30 % befanden, die wegen Sehschwäche zum Schiess- und Beobachtungsdienst minderwertig waren. Diese Zahlen geben zu denken!

Jedenfalls wird eine genaue und längere Zeit fortgesetzte Statistik namentlich unter den aus höheren Schulen hervorgehenden Militärpflichtigen in allen Ländern darüber Aufschluss zu geben imstande sein, ob und in welcher Weise das Schulleben den Gesundheitszustand in ungünstiger Weise beeinflusst. In Deutschland ist eine derartige Statistik bereits im Gange.

Ich gehe nun dazu über, Ihnen Lehrpläne vorzulegen, in welchen der Versuch gemacht wird, den Unterricht nach physiologisch-hygienischen Gesichtspunkten aufzubauen. Ich nenne die betreffende Schule, in der solche Pläne verwirklicht werden sollen, Einheitsschule. Ich habe dieselbe hier für deutsche Verhältnisse konstruiert, es ist jedoch nicht schwer, sie mit einigen Abänderungen den Bedürfnissen eines jeden anderen Staates auzupassen. In Tab. XI. (p. 422) haben Sie den Plan einer Einheitsschule mit gemeinsamem Unterbau bis zum Schluss des 6. Jahreskursus.

Für Deutschland ist dies derjenige Zeitpunkt, in welchem der Schüler einer höheren Lehranstalt die Berechtigung zum einjährig-freiwilligen Heeresdienst erhält. Ein grosser Teil der Schüler verlässt alsdann die höhere Schule, um sich irgend einem praktischen Berufe zuzuwenden. An vielen höheren Lehranstalten geht diesen 6. Jahreskursen noch eine dreiklassige Vorschule voraus. Wo sie fehlt, übernimmt in der Regel die Volksschule (Elementarschule) die Vorbildung. Vor dem 7. Lebensjahre sollten die Kleinen einem geregelten Schulunterricht nicht zugewiesen werden; sie würden dann mit 10 Jahren in die höhere Schule eintreten. Als Unterrichtsfächer in der Vorschule kommen in Betracht: Religion, Rechnen, Schreiben, einfache Gymnastik mit etwas Gesang, ferner die Muttersprache, die mit einem reichen Anschauungsunterricht zu verbinden ist. In der obersten Vorschulklasse tritt, behufs frühzeitiger Entwickelung der Sinnentätigkeit und Schulung der Hand noch Naturbeschreibung und leichter Handfertigkeitsunterricht hinzu.

Was die Erläuterungen der Organisation der eigentlichen Einheitsschule betrifft, so sind zunächst einige Worte über den Religionsunterricht zu sagen. Die Hauptsache ist dabei, dass das ethische Moment in den Vordergrund, eine gedächtnismässige Stoffaneignung jedoch zurücktritt. Mit dem 14. oder 15. Lebensjahre beginnt gewöhnlich der Konfirmationsunterricht. Von dieser Zeit an kann die Schule den Religionsunterricht eventuell entbehren, da er ausserhalb derselben in der Hand des Geistlichen liegt. Es lässt sich aber auch durch kleine Abänderungen im übrigen Unterrichtsgebiet der Religionsunterricht auf der Mittel- und Oberstufe festhalten. Meinen vorherigen Ausführungen gemäss findet die Muttersprache besondere Berücksichtigung, dagegen fehlen im ganzen Unterbau die alten Sprachen vollständig. Wer nach Absolvierung des 6. Jahreskursus ins Leben tritt, bedarf in der Schulbildung ihrer nicht. Von neuen Sprachen kommt zunächst das Englische in Betracht. Es ist die leichteste der Weltsprachen und gerade dem Deutschen liegt sie nahe. Auf die Naturbeschreibung und hygienische Unterweisungen ist behufs Ausbildung der Sinnentätigkeit und früher Gewöhnung an eine gesunde Lebensweise Gewicht zu legen. Auge und Hand werden überdies durch Zeichnen und Handfertigkeitsunterricht geübt. Für körperliche Betätigung sind fünf Unterrichtsstunden vorgesehen.

Auf den gemeinsamen Unterbau folgt eine dreifache Gabelung, d.h. der Oberbau zerfällt in eine altsprachliche, neusprachliche und naturwissensch.-mathematische Abteilung. Die Wahl des Studienganges ist bis zum 16. Lebensjahre hinaufgeschoben. Die einzelnen Abteilungen sind gemäss der Art der Bildung, die sie übermitteln sollen, organisiert. Es ist jedoch besonders darauf hinzuweisen, dass in allen drei Abteilungen Latein vorhanden ist; ich möchte es als Rückgrat alles Unterrichts bezeichnen, aber ohne ihm überall eine dominierende Stellung einzuräumen. In allen Abteilungen wird Zeichen- und Hygiene-Unterricht getrieben und die Gymnastik kommt zu voller Geltung. Auf andere Einzelheiten einzugehen, verbietet die Zeit; sie ergeben sich jedoch aus einem genauen Studium der Tabelle. Die höchste Zahl der 40-Minutenlektionen beläuft sich auf 31; an fünf Wochentagen 5 von 8 bis 12^h 5 Min.; an einem Wochentage 6 von 8 bis 12^h 55 Min.

Die Tabelle XII. (p. 423) zeigt einen Vergleich dieser Einheitsschule mit den bestehenden Schulgattungen Deutschlands hinsichtlich der Stundenzahl. Man ersieht daraus, dass die Sitzzeit in der Einheitsschule kürzer ist als in jenen. Die Tab. XIII. (p. 424*a*) enthält genaue Angaben über die Zahl und Verteilung der Kurzstunden in den einzelnen Klassen, die Länge der täglichen Schulzeit inkl. Pausen in Zeitstunden und Minuten, die durchschnittliche tägliche häusliche Arbeitszeit der Schüler, die nicht überschritten werden sollte, und die Gesamtbeanspruchung der Schüler an den einzelnen Tagen und in der Woche. Es ergeben sich als maximale Tagesarbeit für 17- bis 18-jährige junge Leute 8 Stunden 25 Min. und 46 Stunden und 20 Min. in der Woche. An keinen Erwachsenen werden höhere Anforderungen gestellt; und doch wird in den bestehenden Schulen diese Zeit noch überschritten.

Eine ähnliche Organisation wie die hier beschriebene besteht in Frankreich, nur geht die Gabelung noch weiter. Ich habe von einer Reproduktion der französischen Lehrpläne abgesehen. Ich will hier nur bemerken, dass der höhere Unterricht (*l'enseignement secondaire*) in Frankreich sich auf einen 4-jährigen Vorschul- oder Elementarkursus

aufbaut und sich dann, über sieben Jahre und Klassen, eingeteilt in zwei Zyklen, erstreckt. Im ersten Zyklus haben die Schüler die Wahl zwischen zwei Sektionen. In der einen Sektion wird neben denjenigen Fächern, die beiden gemeinsam sind, obligatorisch Latein und fakultativ Griechisch unterrichtet. Die andere Sektion verzichtet auf beide alten Sprachen, verstärkt aber den Unterricht in der Muttersprache, in den Naturwissenschaften, im Zeichnen etc. Dieser erste Zyklus umfasst vier Jahre und die Klassen 6 bis 3. Zum Eintritt in den zweiten Zyklus müssen die Aspiranten ein Examen ablegen. Der zweite Zyklus ist 3-jährig und besteht aus vier Abteilungen, aus denen sich die Schüler für ihren Studiengang eine wählen können. Die eine Abteilung enthält Latein und Griechisch (entsprechend den Gymnasien bezw. dem altsprachlichen Abschnitt der Einheitsschule); die zweite Abteilung enthält Latein und lebende Sprachen verstärkt (entsprechend dem Realgymnasium und der neusprachlichen Abteilung der Einheitsschule); die dritte Abteilung enthält Latein und verstärkt die Naturwissenschaften (entsprechend der naturwissensch.-mathemat. Abteilung der Einheitsschule) und die vierte Abteilung endlich enthält gar keine alte Sprache und entspricht der deutschen Oberrealschule.

Es entsteht jetzt die Frage nach den Vorteilen bezw. Nachteilen der Organisation des Unterrichts, wie ihn mein Entwurf der Einheitsschule und die französische Einteilung zeigen.

Einen Vorteil kann man darin erblicken, dass die geistigen Anlagen und Fähigkeiten der Schüler berücksichtigt werden und der Unterricht individualisiert wird. Es gibt Menschen, die für alte Sprachen inklinieren und sie leicht bewältigen, die sich aber für moderne Sprachen wenig interessieren und für mathematische und naturwissenschaftliche Fächer weder Neigung noch Verständnis besitzen. Für Schüler dieser Gattung passt die altsprachliche Abteilung. Andererseits gibt es Schüler mit besonderer Neigung und mit Talent für neuere Sprachen, auch das Latein liegt ihnen noch, die aber ebenfalls den exakten Wissenschaften verständnislos gegenüber stehen. Für solche Schüler kommt die neusprachliche Abteilung in Betracht. Endlich gibt es Schüler, die für Mathematik und Naturwissenschaften eine besondere Begabung besitzen und gewissen sprachlichen Anforderungen noch gewachsen sind. Sie gehören in die mathematisch-naturwissenschaftliche Abteilung. Die in Rede stehende Organisation des höheren Unterrichts bringt aber auch schwere Nachteile mit sich. Heutigen Tages finden wir in Deutschland—und in Frankreich und anderen Ländern ist es ähnlich—den Kastengeist in den höheren Gesellschaftskreisen stark ausgebildet. Dieser Kastengeist und die sozialen Gegensätze werden in Deutschland durch das Gymnasium, das Realgymnasium und die Oberrealschule geradezu gezüchtet. Bis vor kurzem fehlte es diesen drei Anstalten sogar an der Gleichberechtigung und noch heute ist sie in einzelnen deutschen Bundesstaaten nicht oder doch nur mit Einschränkungen vorhanden. Dieser Zustand wird durch die geschilderte Trifurkation nicht beseitigt. Wenn nun auch der Alte Satz: *Non scholae, sed vitae discimus*—gewiss zu recht besteht, so handelt es sich im Schulunterricht doch nicht um die Heranbildung blosser Arbeitskräfte, in dem einen oder andern Fach, sondern um eine möglichst allgemeine Bildung. Je mehr aber die Bildungswege in der Schule sich verzweigen, je mehr sich der Lehrplan zersplittert, desto mehr wird die erstere Auffassung in den Vordergrund treten. Damit aber

erhalten wir ein kulturelles Zerrbild ; das Einheitliche, das in der menschlichen Natur liegt, wird vernichtet, die menschliche Persönlichkeit wird untergraben und ein harmonisches Zusammenwirken der Glieder eines Staates fehlt.

Diese Gesichtspunkte lassen es bedenklich erscheinen, die Schule mit der Trifurkation, trotz ihrer vielen Anhänger, oder die bisherige Zersplitterung im Schulwesen Deutschlands und anderer Staaten als Ideal zu betrachten.

Ich wende mich daher noch zu einem zweiten Vorschlag, der eine wirkliche Einheitsschule ohne jegliche Gabelung betrifft. Den Plan dazu zeigt Ihnen Tab. XIV. (p. 424). Er ist ebenfalls auf deutsche Verhältnisse zugeschnitten, lässt sich aber auch den Bedürfnissen jeder anderen Nation anpassen. Ich habe darin die Kurzstunden teils zu 40, teils zu 45 Min. angenommen. Auf diese Weise, sowie auch dadurch, dass einzelnen Fächern ein Plus an Stunden zugewiesen wurde, kommt, wie Sie aus den Summen und der Verteilung unter der Haupttabelle ersehen, eine etwas grössere Beanspruchung der Schüler als bei der vorherigen Organisation heraus, allein diese ist doch noch geringer als in den bisherigen Schulgattungen. Auch lassen sich kleine Aenderungen zu gunsten einer Entlastung leicht anbringen ; an der Organisation und dem Charakter der Lehrverfassung wird dadurch nichts geändert. Ueber den Unterbau ist nichts besonderes zu sagen ; er ist fast derselbe wie der in Tab. XI. (p. 422), nur bleibt der Religionsunterricht in allen Klassen bestehen. Die Organisation des Lehrplanes ist so eingerichtet, dass jeder einigermassen befähigte junge Mensch auch aus den ihm weniger zusagenden Wissensgebieten die Elemente in sich aufnehmen kann. Es ist sowohl dem Humanismus als auch dem Realismus Rechnung getragen und in der Verbindung dieser beiden vollzieht sich die Versöhnung derjenigen Anschauungen, die sich in den bisherigen Schulgattungen bekämpften. Um Raum für beide zu schaffen, muss natürlich beiden eine Beschränkung auferlegt werden. Die Erlernung des Griechischen in beschränktem Masse scheint mir nicht unvereinbar mit der der übrigen Lehrfächer zu sein. Durch Versuche würde sich bald herausstellen, ob seine Beibehaltung in dem angegebenen Umfange oder seine gänzliche Beseitigung das rechte sein würde.

Behörden, Eltern, Lehrern, Schülern und *last not least* den Aerzten wird ein Stein vom Herzen fallen, wenn der Gegensatz der höheren Schulen beseitigt würde, wenn für höhere Studien einigermassen beanlagte Kinder in einer einzigen Schulgattung volle Freiheit in der Wahl des Berufes finden würden. Durch gesetzliche Bestätigung der Einheitsschule als der einzigen höheren Lehranstalt würden die Schwierigkeiten, die in den ungleichen Verhältnissen verschiedener Schulgattungen liegen, beseitigt werden. Die Väter brauchten nicht mehr ängstlich darauf bedacht zu sein, welcher Unterricht für ihre Söhne der geeignetste ist. Missgriffe in der Wahl der Schule, wodurch manchem das Leben verbittert wird, und die sich nicht so leicht ausgleichen lassen, würden nicht mehr vorkommen. Das Bewusstsein, dass eine gleiche allgemeine Schulbildung der Jugend aller besseren Stände zuteil wird, würde die Zusammengehörigkeit dieser Stände befestigen und soziale Missklänge im privaten Verkehr und im öffentlichen Leben hintenanhalten. Nicht nur für die männliche, sondern auch für die weibliche Jugend, der man höhere Studien nicht vorenthalten darf, würde sich die Einheitsschule vortrefflich eignen und es würde dadurch die weit mehr Vorteile als Nachteile

aufweisende Koedukation der Geschlechter ganz erheblich gefördert werden.

Aber nicht nur pädagogische, kulturelle, soziale und praktische Gesichtspunkte sind beim Aufbaue des Lehrplanes in Betracht zu ziehen, sondern auch die physiologischen und hygienischen Momente müssen dabei berücksichtigt werden. Und gerade diese kommen durch eine dem jugendlichen Organismus angepasste Aufeinanderfolge der Unterrichtsfächer, durch die Einführung der Kurzstunden, der ungeteilten Unterrichtszeit und des gemeinsamen Unterbaues auch in der Einheitsschule zur Geltung. So sehen wir denn, dass die Beziehungen zwischen Pädagogik und Medizin sich bis in alle Details des Unterrichtswesens hinein verfolgen lassen, ja in diesen Details sind diese Beziehungen von allergrösstem Wert; es kommt in ihnen das zum Ausdruck, was man die Physiologie und Hygiene des Unterrichts nennt.

Hier lässt sich das Experiment nicht entbehren. Untersuchungen über die Wirkung des Unterrichts auf die Schüler, über Ermüdbarkeit und Ermüdung, über Aufmerksamkeit und Gedächtnis, sind schon seit längerer Zeit von mir und vielen anderen nach verschiedenen Methoden ausgeführt worden, und es hat sich dabei herausgestellt, das es mit ihrer Hülfe gelingt, die Unterrichtsfächer nach ihrem Ermüdungswert zu ordnen. Neuerdings versprechen Beziehungen zwischen Kopfumfang und geistigen Fähigkeiten der Schüler für die Pädagogik von Bedeutung zu werden. Solche Untersuchungen wurden von dem Nervenarzte Dr. Bayerthal in Worms und von mir selbst angestellt.

Bayerthal hat Kopfmessungen in Hülfsschulen vorgenommen, in denen es ja ganz besonders auf ein inniges Zusammenarbeiten von Aerzten und Pädagogen ankommt, und er hat dann die Ergebnisse mit denen gleichalteriger Normalschüler einer Volksschule verglichen. Ich habe in höheren Lehranstalten Kopfmessungen vorgenommen. Zwischen Körpergrösse und Schädelumfang besteht weder bei Erwachsenen noch bei Kindern ein gesetzmässiger Zusammenhang. Dagegen gibt es eine Gesetzmässigkeit zwischen Kopfumfang und Intelligenz in den einzelnen Lebensaltern, so dass man aus der Grösse des Kopfumfanges den Schluss ziehen kann, ob ein Schulkind in einem bestimmten Alter für eine bestimmte Klasse inbezug auf den Unterrichtsbetrieb reif ist. Umgekehrt lässt sich aus der richtigen Begutachtung der Begabung auf den Kopfumfang schliessen. Bayerthal fand, dass $9\frac{1}{2}$- bis $10\frac{1}{2}$-jährige Knaben mindestens einen Kopfumfang von 52,9 cm., gleichalterige Mädchen einen solchen von 51,8 cm. besitzen müssen, um hervorragend gute Schulleistungen aufzuweiden. In Tab. XV. (p. 425) ist das Mittelmass des Kopfumfanges von einer grossen Anzahl von Knaben und Mädchen in Zusammenhang mit ihrer Begabung und den Zensuren für ihre Leistungen verzeichnet.

Wenn nun die Beziehungen zwischen Medizin und Pädagogik wirklich nachhaltigen Nutzen stiften sollen, so müssen sowohl seitens der Schulmänner als auch der Aerzte, sowie im Schulwesen selbst, gewisse Bedingungen erfüllt werden, die ich hier noch kurz skizzieren möchte. In den Studiengang aller Pädagogen, gleichgültig welche Fächer sie im Schulamte vertreten, sind Unterweisungen über den Bau und die Verrichtungen des menschlichen Körpers, über Hygiene und allgemeine Pathologie aufzunehmen. Ueber das Ergebniss ihrer Studien in diesen Fächern haben sie eine Prüfung vor ihrer Anstellung im Schulamte abzulegen. Von allen Medizinern, die zum Schulwesen in Beziehung treten, ist eben-

falls die Ablegung einer besonderen Prüfung zu fordern, in der sie sich über die Kenntniss des äusseren und inneren Schulbetriebs, sowie der Lehrmethodik auszuweisen haben. Auf diese Weise werden sich Pädagogen und Mediziner in ihren Anschauungen einander immer mehr nähern. Auf diese Weise wird eine Kategorie von Aerzten geschaffen, die ihr Wissen in erster Linie in den Dienst der Schule stellen. Sie sind Schulärzte *κατ' ἐξοχήν*.

Sie sind wie die Lehrer Staats- oder Komunalbeamte und gehören dem Lehrkörper an. Sie haben in allen schul- und unterrichtshygienischen Angelegenheiten die Anstaltsleiter und übrigen Lehrer mit Rat und Tat zu unterstützen. Sie sind die Lehrer der Hygiene in den Schulen, wie dies beispielsweise in Ungarn, Bulgarien und anderen Ländern bereits der Fall ist. Sie haben endlich den Gesundheitszustand der Anstalt und der Schüler zu überwachen. Unter diesen Verhältnissen wird es keinem Pädagogen mehr einfallen, in dem Arzte einen Aufsichtsbeamten zu sehen oder einen Fremdling zu erblicken, der in die Rechte der Schule eingreifen will. Damit sich derartige Ideale verwirklichen lassen, muss auch der Staat das Seinige dazu beitragen. An den Hochschulen sind besondere Lehrstühle für Schulhygiene zu errichten. Die Inhaber derselben dürfen nicht nur medizinisch, sondern müssen auch pädagogisch vorgebildet und in der pädagogischen Praxis bewandert sein. In der Unterrichtsverwaltung bedarf es einer besonderen schulhygienischen Abteilung.

Japan hat damit den Anfang gemacht. In den Schulkommissionen müssen neben den Schulmännern auch Aerzte und Techniker ihren Sitz haben. In Deutschland ist es leider anders. Dort ist die Reichsschulkommission ganz einseitig aus Schulmännern zusammengestzt. Wir brauchen auch ein besonderes Amt für Schulhygiene und Erziehungswesen, und ein solches in Anregung zu bringen wäre eine dankbare Aufgabe unserer internationalen Kongresse.

Es kann darüber kein Zweifel bestehen, dass ein solches Amt bedeutungsvolle Aufgaben zur Wahrung der idealen Güter der Menschheit zu erfüllen hat, Aufgaben denen in unserer Zeit der sozialen Differenzierung die Regelung gemeinsamer Ziele der geistigen Arbeit zufällt, um diese Arbeit im Sinne einer dem Fortschritte und der gegenseitigen Verantwortlichkeit dienenden Kultur zu fördern.

Ich bin am Schlusse meiner Vorlesung. Ich habe versucht, Ihnen in populär-wissenschaftlicher Weise das Wesen, die Bedeutung, die Zwecke und Ziele der Beziehungen zwischen Medizin und Pädagogik, in allgemeinen Umrissen vor Augen zu führen. Was ich Ihnen erzählt habe, ist nicht auf eine bestimmte Nation gemüntzt, sondern es gilt für alle Nationen. In jeder Nation werden sich die Beziehungen zwischen Medizin und Pädagogik im einzelnen natürlich besonders gestalten, ihr inneres Wesen aber, das sich auf die Erhaltung und Förderung der Gesundheit der Jugend bezieht, bleibt überall dasselbe.

TABELLE I.

Maengel der Gebaeude und ihrer Einrichtungen.

Name der Mängel.	Mittel- und Volksschulen.	Höhere Schulen.
Tiefklassen, bezw. andere Ursachen für schlechte Beleuchtung	67 = 11·5 %	31 = 10·3 %
Offene Gasflammen	15 = 2·6 %	18 = 6 %
Schlechte Vorhänge	53 = 9·1 %	47 = 14·7 %
Schlechte Heizung	6 = 1·3 %	9 = 3 %
Schlechte Fussböden	118 = 20·3 %	28 = 9·3 %
Kein staubbindendes Oel	274 = 45·8 %	48 = 16 %
Tapeten	4 = 0·6 %	8 = 2·7 %
Schlechte Ventilation	93 = 16 %	40 = 13·3 %
Unbrauchbare Subsellien	106 = 19 %	40 = 13·3 %
Schlechte Reinigung	144 = 24·6 %	—
Mittelmässige Reinigung	294 = 51 %	—
Belästigende Aborte	59 = 10·02 %	26 = 8·7 %
Kleiderablage in den Unterrichtsräumen	328 = 56·4 %	83 = 28 %
Bade-Einrichtungen nicht vorhanden	33 = 5·68 %	73 = 24·3 %
Keine Blitzableiter	218 = 35·8 %	37 = 12·3 %
Unterrichtsstörungen in der Umgebung	119 = 22·3 %	95 = 31·7 %
Gesundheitsschädliche Einwirkungen in der Umgebung	50 = 8·6 %	25 = 8·3 %
Schlechtes Trinkwasser	49 = 8·4 %	—

TABELLE II.

Aerztliche Untersuchungsergebnisse am bekleideten und unbekleideten Koerper.

Befund.	Am bek'eideten Körper.	Am unbekleideten Körper.
	Jahrgang 1905/06.	Jahrgang 1905/06.
Zahl der Untersuchten	472	472
Zahl der krank Befundenen	265 = 55·29 %	312 = 66·1 %
Blutarmut nach allgemeinem und mikroskop. Befund	20·32 %	20·32 %
Nervosität	26·76 %	26·76 %
Wirbelsäuleverkrümmungen	—	7·32 %
Drüsenschwellungen	1·35 %	5·80 %
Hörstörungen	12·31 %	12·31 %
Zahnkrankheiten	79·32 %	79·32 %
Seh-Störungen	44·80 %	44·80 %
Hautkrankheiten	1·50 %	3·27 %
Sonstige Leiden	2·74 %	7·64 %

TABELLE III.

LEHRPLAN DES DEUTSCHEN GYMNASIUMS.

	VI.	V.	IV.	U. IV.	O. III.	U. II.	O. II.	U. I.	O. I.	Zusammen.
Religion	3	2	2	2	2	2	2	2	2	19
Deutsch und Geschichtserzählungen	3 / 1 } 4	2 / 1 } 3	3	2	2	3	3	3	3	26
Lateinisch	8	8	8	8	8	7	7 } 6	7 } 6	7 } 6	68
Griechisch	—	—	—	6	6	6				36
Französisch	—	—	4	2	2	3	3	3	3	20
Geschichte	—	—	2	2	2	2	} 3	} 3	} 3	17
Erdkunde	2	2	2	1	1	1	} —	} —	} —	9
Rechnen und Mathematik	4	4	4	3	3	4 } 2	4 } 2	4 } 2	4 } 2	34
Naturwissenschaften	2	2	2	2	2					18
Schreiben	2	2	—	—	—	—	—	—	—	4
Zeichnen	—	2	2	2	2	—	—	—	—	8
Zusammen	25	25	29	30	30	30	30	30	30	259

Dazu kommen: als *verbindlich* je 3 Stunden *Turnen* durch alle Klassen und je 2 Stunden *Singen* für die Schüler der VI. und V. Die für das Singen beanlagten Schüler von IV. an aufwärts sind zur Teilnahme am Chorsingen verpflichtet; als *wahlfrei* von U. II. ab je 2 St. *Zeichnen;* von O. II. ab je 2 St. *Englisch* und je 2 St. *Hebräisch.* Für Schüler der IV. und III. mit schlechter Handschrift ist besonderer *Schreibunterricht* einzurichten.

TABELLE IV.

LEHRPLAN DES DEUTSCHEN REALGYMNASIUMS.

	VI.	V.	IV.	U. III.	O. III.	U. II.	O. II.	U. I.	O. I.	Zusammen.
Religion	3	2	2	2	2	2	2	2	2	19
Deutsch und Geschichtserzählungen	3 / 1 } 4	2 / 1 } 3	3	3	3	3	3	3	3	28
Lateinisch	8	8	7	5	5	4	4	4	4	49
Französisch	—	—	5	4	4	4	4 } 3	4 } 3	4 } 3	29
Englisch	—	—	—	3	3	3				18
Geschichte	—	—	2	2	2	2	} 3	} 3	} 3	17
Erdkunde	2	2	2	2	2	1	} —	} —	} —	11
Rechnen und Mathematik	4	4	4	5	5	5	5	5	5	42
Naturwissenschaften	2	2	2	2	2	4	5	5	5	29
Schreiben	2	2	—	—	—	—	—	—	—	4
Zeichnen	—	2	2	2	2	2	2	2	2	16
Zusammen	25	25	29	30	30	30	31	31	31	262

Dazu kommen: als *wahlfrei* von O. III. ab je 2 Stunden *Linearzeichnen.* In Bezug auf *Turnen* und *Singen* wie beim Gymnasium; ebenso in Bezug auf *Schreibunterricht* für Schüler der IV. und III.

TABELLE V.

Lehrplan der deutschen Oberrealschule.

	VI.	V.	IV.	U. III.	O. III.	U. II.	O. II.	U. I.	O. I.	Zusammen.
Religion	3	2	2	2	2	2	2	2	2	19
Deutsch und Geschichtserzählungen	4 / 1 = 5	3 / 1 = 4	4	3	3	3	4	4	4	34
Französisch	6	6	6	6	6	5	4	4	4	47
Englisch	—	—	—	5	4	4	4	4	4	25
Geschichte	—	—	3	2	2	2	3	3	3	18
Erdkunde	2	2	2	2	2	1	1	1	1	14
Rechnen und Mathematik	5	5	6	6	5	5	5	5	5	47
Naturwissenschaften	2	2	2	2	4	6	6	6	6	36
Schreiben	2	2	2	—	—	—	—	—	—	6
Freihandzeichnen	—	2	2	2	2	2	2	2	2	16
Zusammen	25	25	29	30	30	30	31	31	31	262

Dazu kommen: als *wahlfrei* von O. III. ab je 2 Stunden *Linearzeichnen* und in O. I. 2 St. *chem. Laboratorium*. In Bezug auf *Turnen* und *Singen* wie beim Gymnasium. Ebenso in Bezug auf den *Schreibunterricht* für Schüler der III.

TABELLE VI.

Anderer Lehrplan der deutschen Oberrealschule: Pforzheim.

Lehrgegenstände.	VI	V.	IV.	U. III.	O. III.	U. II.	O. II.	U. I.	O. I.	Zusammen
Religion	2	2	2	2	2	2	2	2	2	18
Deutsch	5	5	4	4	4	4	4	4	4	38
Französisch	6	6	6	6	5	5	4	4	4	46
Englisch	—	—	—	4	4	4	4	4	4	24
Geschichte	—	—	2	2	2	2	3	3	3	17
Erdkunde	2	2	2	2	2	—	—	—	—	10
Naturgeschichte	2	2	2	2	2	—	—	—	—	10
Chemie	—	—	—	—	—	2	2	2	2	} 14
Chem. Laboratorium	—	—	—	—	—	—	2	2	2	
Physik	—	—	—	—	2	2	3	3	3	13
Mathematik	5	4	4	5	5	5	5	5	5	43
Geometr. Anschauungs-Unterricht	—	1	1	—	—	—	—	—	—	2
Darstellender Unterricht	—	—	—	—	—	2	2	2	2	8
Zeichnen	2	2	2	2	2	2	2	2	2	18
Schreiben	2	2	2	—	—	—	—	—	—	6
Turnen	2	2	2	2	2	2	2	2	2	18
Singen	2	2	2	2	—	1	1	1	1	12
Zusammen	30	30	31	33	32	33	34+2	34+2	34+2	297
Spanisch	—	—	—	—	—		2			—
Italienisch	—	—	—	—	—		2			—
Stenographie	—	—	—	—	—		2			—

TABELLE VIa.

LEHRPLAN EINER DEUTSCHEN HOEHEREN MAEDCHENSCHULE.

Lehrgegenstände.	10	9	8	7	6	5	4	3	2	1	III.	II.	I.
Religionslehre	4/2	3	3	3	3	2	2	2	2	2	2	2	1
Pädagogik	—	—	—	—	—	—	—	—	—	—	3	3	2
Deutsche Sprache	7	6	6	5	5	5	5	5	5	4	4	4	5
Französische Sprache	4/2	3	5	5	5	5	4	5	5	4	4	4	5
Englische Sprache	—	—	—	—	—	—	3	4	4	3	4	4	2
Rechnen und Raumlehre	4	4	4	4	3	3	2	2	2	2	2	2	3
Geographie und Heimatkunde	—	—	—	2	2	2	2	1	1	—	2	2	1
Geschichte	—	—	—	—	2	2	2	2	2	2	3	3	2
Kunstgeschichte	—	—	—	—	—	—	—	—	—	1	—	—	—
Naturkunde	—	—	—	—	—	2	2	2	2	2	2	2	1
Schreiben	—	2	2	2	1	—	—	—	—	—	1	1	—
Zeichnen	—	—	—	1	1	2	2	2	2	2	1	1	1
Gesang	2/2	2/2	2	2	2	2	2	2	2	2	1	1	1
Handarbeit	2	2	2	2	2	2	2	2	2	—	1	1	1
Turnen	2/2	2/2	1	2	2	2	2	2	2	2	1	1	1
Zusammen	19	22	25	28	28	29	30	31	31	26	31	31	29

TABELLE VII.

REFORMLEHRPLAN NACH FRANKFURTER SYSTEM.

Fächer.	Unterbau gemeinsam.			Mittelbau fast gemeinsam.		Oberbau Gymnasium.				Oberbau Realgymnasium.			
	VI.	V.	IV.	U. III.	O. III.	U. II.	O. II.	U. I.	O. I	U. II.	O. II.	U. I.	O. I.
Religion	2	2	2	2	2	2	2	2	2	2	2	2	2
Deutsch	5	4	4	3	3	3	3	3	3	3	3	3	3
Französisch	6	6	6	G. 2 / R.G. 4	G. 2 / R.G. 4	2	2	2	2	3	3	3	3
Lateinisch	—	—	—	G. 10 / R.G. 8	G. 10 / R.G. 8	8	8	8	8	6	6	6	6
Griechisch	—	—	—	—	—	8	8	8	8	—	—	—	—
Englisch	—	—	—	—	—	—	—	—	—	6	4	4	4
Erdkunde	2	2	2	1	1	—	—	—	1	1	1	1	1
Geschichte	—	—	3	2	2	2	2	3	2	2	2	2	2
Rechnen und Mathematik	5	5	5	4	4	3	4	4	3	4	5	5	5
Naturbeschreibung	2	2	2	2	2	—	—	—	—	—	—	—	—
Physik	—	—	—	—	—	2	2	2	2	3	2	2	2
Chemie	—	—	—	—	—	—	—	—	—	—	2	2	2
Zeichnen	—	2	2	2	2	—	—	—	—	2	2	2	2
Schreiben	2	2	—	—	—	—	—	—	—	—	—	—	—
Zusammen	24	25	26	G. 28 R.G. 28	G. 28 R.G. 28	30	31	32	31	32	32	32	32

Turnen, VI.–O. I.: 3 Stunden. *Singen*, VI. und V.: 2 Stunden; IV.–O. I.: 2 Stunden.

TABELLE VIII.

Reformlehrplan nach Altonaer System.

	Unterbau gemeinsam.			Realschule.			Realgymnasium.					
	VI.	V.	IV.	III.	II.	I.	U. III.	O. III.	U. II.	O. II.	U. I.	O. I.
Religion	3	2	2	2	2	2	2	2	2	2	2	2
Deutsch	4	3	3	3	3	3	2	2	3	3	3	3
Französisch	6	6	5	6	6	5	4	4	4	4	4	4
Englisch	—	—	4	5	4	5	3	3	3	3	3	3
Lateinisch	—	—	—	—	—	—	6	6	5	5	5	5
Geschichte und Erdkunde	3	3	4	4	4	3	4	3	3	3	3	3
Rechnen und Mathematik	5	5	6	6	5	5	5	4	5	4	5	5
Naturbeschreibung	2	2	2	2	2	—	2	2	2	—	—	—
Schreiben	2	2	—	—	—	—	—	—	—	—	—	—
Zeichnen	—	2	2	2	2	2	2	2	2	2	2	2
Physik	—	—	—	—	2	3	—	2	2	3	2	2
Chemie	—	—	—	—	—	2	—	—	—	2	2	2

Turnen, VI.–O. I. : 3 Stunden. *Singen*, VI. und V. : 2 Stunden ; VI.–O. I. : 2 Stunden.

TABELLE X.

Prozentsatz der zum Militärdienst Untauglichen.

Land.	1904.	1905.	1906.
Bulgarien	8·5 %	6·1 %	8·5 %
Russland	9·9 %	10·4 %	—
Dänemark	—	12 %	—
Frankreich	16·9 %	—	—
Schweden	—	17·2 %	—
Norwegen	22·5 %	—	—
Italien	27·28 %	28·73 %	—
Portugal	—	28·68 %	—
Belgien	30·17 %	30·28 %	31·13 %
Schweiz	43·90 %	—	—

Deutschland : 1890.—Gewöhnliche Mannschaften, 43·5 %. Einjährig-Freiwillige, 47·5 %.

TABELLE IX.

VERGLEICH DER HOECHSTZAHLEN DER PFLICHTSTUNDEN ALLER LAENDER.

	Zahl der obligatorischen Stunden in			
	Gymnasium.	Realgymnasium.	Oberrealschule.	Realschule.
Preussen . .	30–35, Sa. 304	30–36 (37), Sa. 307 (315)	30–36, Sa. 307	30–35, Sa. 199
Sachsen . .	30–35, ,, 292	31–34, ,, 298	—	30–35, ,, 200
Württemberg .	24–34, ,, 283	26–35, ,, 300	28–35, Sa. 297	28–34, ,, 158
Bayern . .	25–29, ,, 246	25–33, ,, 265	—	28–34, ,, 181

Die höchste Zahl Pflichtstunden in den höheren Schulen hat von allen Ländern Europas Deutschland, worüber nachstehende Tabelle Aufschluss giebt:

Name des Landes.	Höchste Zahl der wöchentl. Stunden aller Klassen.	Anzahl der Schuljahre.	Höchste wöchentl. Pflichtstundenzahl.	Name des Landes.	Höchste Zahl der wöchentl. Stunden aller Klassen.	Anzahl der Schuljahre.	Höchste wöchentl. Pflichtstundenzahl.
Deutschland .	315	9	37	Rumänien. .	222	8	28
Schweden . .	271	9	36	Griechenland .	217	7	35
Schweiz . .	265	8½	36	Belgien . .	210	7	31
Russland . .	259	8	35	Bulgarien . .	205	7	32
Dänemark .	250	7	36	Luxemburg .	202	7	32
Finland . .	248	8	31	Italien . . .	200	7–8	33
Norwegen . .	246	7	36	Portugal . .	189	7	28
Bosnien . .	242	8	30½	Frankreich .	173	7	28
Serbien . .	234	8	30	Türkei. . .	173	7	27
Ungarn . .	232	8	30	Holland . .	166	6	28
Oesterreich .	230	8	33	England . .	— *	5–6	30½
Kroatien und Slavonien .	229	8	30	Spanien . .	168	5	27

* Lässt sich bei der eigentümlichen Einrichtung der englischen Schulen schwer angeben.

TABELLE XI.

ENTWURF FUER DIE LEHRVERFASSUNG EINER EINHEITSSCHULE MIT GEMEINSAMEM UNTERBAU, DREIFACHER GABELUNG IM OBERBAU UND KURZSTUNDEN [40 MINUTENBETRIEB].

Zeiteinteilung: $8–8^{40}$, $8^{50}–9^{30}$, $9^{40}–10^{20}$, $10^{35}–11^{15}$, $11^{25}–12^{05}$, $12^{15}–12^{55}$. Dauer des Schuljahres [1., 2., 3. Trimester] von Anfang Oktober bis Ende Juli.

Fächer.	Vorschule oder gemeinsame Volksschule. Aufnahmebed.: 7. Lebensjahr.				Einheitsschule. Aufnahmebedingung: 10. Lebensjahr.																			
					Unterbau.							Trifurcation des Oberbaus.												
	3. V.-Kl. IX.	2. V.-Kl. VIII.	1. V.-Kl. VII.	Sa. d. Kzst. d. e. F.	VI.	V.	IV.	III. U.	III. O.	II. U.	Sa. d. Kzst. d. e. F.	II. O.	I. U.	I. O.	Sa. d. Kzst. d. e. F.	II. O.	I. U.	I. O.	Sa. d. Kzst. d. e. F.	II. O.	I. U.	I. O.	Sa. d. Kzst. d. e. F.
												altsprachlich.				neusprachlich.				naturw.-mathem.			
Religion	2	2	2	6	2	2	1	1	—	—	6	—	1	1	8	—	—	—	6	—	—	—	6
Deutsch	9	9	8	26	6	5	5	4	3	3	26	3	3	3	35	4	4	3	37	3	3	3	35
Lateinisch	—	—	—	—	—	—	—	—	—	—	—	8	8	8	24	5	5	5	15	4	4	3	11
Griechisch	—	—	—	—	—	—	—	—	—	—	—	6	6	7	19	—	—	—	—	—	—	—	—
Französisch	—	—	—	—	—	—	3	4	5	5	17	—	—	—	17	5	6	6	34	3	3	2	25
Englisch	—	—	—	—	—	3	3	3	3	5	17	—	—	—	17	5	5	6	33	3	3	3	26
Geschichte	—	—	—	—	—	—	2	2	2	1	7	3	3	3	16	2	2	2	13	—	—	—	7
Geographie	—	—	—	—	2	2	2	1	1	1	9	1	1	1	12	1	1	1	12	1	1	—	11
Rechnen und Mathematik	3	4	4	11	4	4	4	4	3	3	22	—	—	—	22	—	—	—	22	5	5	4	36
Naturl.-Hygiene	—	—	1	1	2	2	2	2	2	1	11	1	1	1	14	1	1	1	14	1	1	2	15
Chemie	—	—	—	—	—	—	—	—	—	2	2	—	—	—	2	—	—	—	2	2	2	4	10
Physik	—	—	—	—	—	—	—	—	2	2	4	—	—	—	4	—	—	—	4	2	2	3	11
Schreiben	2	2	2	6	2	2	—	—	—	!	4 !	—	—	—	4	—	—	—	4	—	—	—	4
Zeichnen	—	—	—	—	1	1	1	2	2	2	9	2	2	2	15	2	2	2	15	2	2	2	15
Gesang	} 2	2	3	7	{ 1	1	—	—	—	—	2	—	—	—	2	—	—	—	2	—	—	—	2
Gymnastik					{ 5	5	5	5	5	5	30	6	5	5	46	6	5	5	46	5	5	5	45
Knabenhandarbeit	—	—	2	2	2	2	2	2	2	—	10	—	—	—	10	—	—	—	10	—	—	—	10
Sa. der Kurzstunden	18	19	22	59	27	29	30	30	30	30	176	30	30	31	267	31	31	31	269	31	31	31	269

TABELLE XII.

VERGLEICH DER EINHEITSSCHULE MIT DEN BESTEHENDEN SCHULGATTUNGEN DEUTSCHLANDS IN BETREFF DER WOECHENTLICHEN STUNDENZAHLEN ALLER KLASSEN.

Fächer.	Sa. in der Vorschule altes System.	Sa. in der Vorschule neues System.	Sa. bis U. II. Gymn.	Sa. bis U. II. R.Gymn.	Sa. bis O. II. O.R.	Sa. bis U. II. R.	Sa. bis U. II. E.	Sa. bi, O. I. Gymn.	Sa. bis O. I. E. alt-sprachlich.	Sa. bis O. I. R.Gymn.	Sa. bis O. I. E. neu-sprachlich.	Sa. bis O. I. O.R.	Sa. bis O. I. E. naturw.-mathem.
Religion	6	6	13	13	13	13	6	19	8	19	6	19	6
Deutsch	21	26	17	19	22	29	26	26	35	28	37	34	35
Lateinisch	—	—	47	37	—	—	—	68	24	49	15	—	11
Griechisch	—	—	18	—	—	—	—	36	19	—	—	—	—
Französisch	—	—	11	17	35	31	17	20	17	29	34	47	25
Englisch	—	—	—	9	13	13	17	—	17	18	33	25	26
Geschichte	—	—	8	8	9	9	7	17	16	17	13	18	7
Geographie	2	—	9	11	11	12	9	12	12	11	12	14	11
Rechnen und Mathematik .	15	11	22	27	32	28	22	34	22	42	22	47	36
Naturl.-Hygiene . . .	—	1	10	10	12	12	11	10	14	12	14	18	15
Chemie	—	—	1	2	4	4	2	1	2	8	2	10	10
Physik.	—	—	1	2	2	2	4	7	11	9	4	8	11
Schreiben	8	6	4	4	6	6	4	4	4	4	4	6	4
Zeichnen	—	—	8	10	10	10	9	8	15	16	15	16	15
Gesang	5	7	4	4	4	4	2	4	2	4	2	4	2
Gymnastik			18	18	18	18	30	27	46	27	46	27	45
Knabenhandarbeit . .	—	2	—	—	—	—	10	—	10	—	10	—	10
	57	59	191	191	191	191	176	290	267	293	269	293	269
Höchste Zahl der wöchentl. Pflichtstunden . .	22 Vollst. 22 Kurzst.		33 Vollst.	35 Vollst.			30 Kurzst.	34 Vollst.	31 Kurzst.	34 Vollst	31 Kurzst.	34 Vollst.	31 Kurzst.

TABELLE XIV.

ENTWURF FUER DIE LEHRVERFASSUNG EINER EINHEITSSCHULE OHNE GABELUNG DES OBERBAUES, MIT KURZSTUNDEN VON 40 UND 45 MINUTEN.

Zeiteinteilung: $8–8^{45}$, $8^{55}–9^{40}$, $9^{50}–10^{30}$, $10^{45}–11^{25}$, $11^{35}–12^{15}$, $12^{20}–1$.
45^m 45^m 40^m 40^m 40^m 40^m

Fächer.	Unterbau.						Oberbau.			Sa. der Kurzstunden der einzelnen Fächer.
	VI.	V.	IV.	U. III.	O. III.	U. II.	O. II.	U. I.	O. I.	
Religion	2	2	2	2	2	1	1	1	1	14
Deutsch	6	5	5	4	3	4	3	3	3	36
Lateinisch	—	—	—	—	—	—	8	8	8	24
Griechisch	—	—	—	—	—	—	3	3	3	9
Französisch	—	—	3	4	4	5	2	2	2	22
Englisch	—	3	3	3	3	4	2	2	2	22
Geschichte	1	1	2	2	2	2	2	2	2	16
Geographie	1	1	1	1	1	1	1	1	1	9
Rechnen und Mathem.	4	4	4	4	3	4	4	4	4	35
Naturb. und Hygiene	2	2	2	2	2	2	1	1	1	15
Chemie	—	—	—	—	—	2	2	2	2	8
Physik	—	—	—	—	2	2	2	2	2	10
Schreiben	2	2	—	—	—	—	—	—	—	4
Zeichnen	1	1	1	2	2	2	—	—	—	9
Gesang	6	6	—	—	—	—	—	—	—	47
Gymnastik			5	5	5	5	5	5	5	
Knabenhandarbeit	2	2	2	2	2	—	—	—	—	10
Sa. der Kurzst. in der Woche	27	29	30	31	31	34	36	36	36	290
Stundenverteilung	3 Tag. 4^h 3 Tag. 5^h	5 Tag. 5^h 1 Tag. 4^h	6 Tag. 5^h	5 Tag. 5^h 1 Tag. 6^h	5 Tag. 5^h 1 Tag. 6^h	4 Tag. 6^h 2 Tag. 5^h	an 6 Tagen 6^h			—
Hausarbeit	$1^h\,20^m$	$1^h\,20^m$	$1^h\,30^m$	2^h	$2^h\,15^m$	$2^h\,40^m$	$2^h\,40^m$	3^h	$3^h\,30^m$	—
Wöchentl. Beanspruchung durch die E. Schule	$30^h\,45^m$	$32^h\,35^m$	$34^h\,30^m$	$38^h\,15^m$	$39^h\,45^m$	$44^h\,30^m$	$46^h\,0^m$	$48^h\,0^m$	$51^h\,0^m$	—
bisher	$38^h\,0^m$	$38^h\,0^m$	$41^h\,0^m$	$45^h\,0^m$	$46^h\,30^m$	$49^h\,0^m$	49–50^h	$51^h\,0^m$	54–55^h	
Differenz	$7^h\,15^m$	$5^h\,25^m$	$6^h\,30^m$	$6^h\,45^m$	$6^h\,45^m$	$4^h\,30^m$	3–4^h	$3^h\,0^m$	3–4^h	—

	Oberbau.					
I.	O. II. altsprachl.	O. II. neusprachlich und O. II. naturw.-mathem.	U. I. altsprachlich.	U. I. neusprachlich und U. I. naturw.-mathem.	O. I. altsprachl.	O. I. neusprachlich und O. I. naturw.-mathem.
. 5^h	6 Tag. 5^h	5 Tag. $5^h = 25^h$ 1 Tag. $6^h = 6^h$	6 Tag. 5^h	5 Tag. $5^h = 25^h$ 1 Tag. $6^h = 6^h$	5 Tag. $5^h = 25^h$ 1 Tag. $6^h = 6^h$	5 Tag. $5^h = 25^h$ 1 Tag. $6^h = 6^h$
	30^h	31^h	30^h	31^h	31^h	31^h
$4^h\ 5^m$	6 Tag. $4^h\ 5^m$	5 Tag. $4^h\ 5^m$ 1 Tag. $4^h\ 55^m$	6 Tag. $4^h\ 5^m$	5 Tag. $4^h\ 5^m$ 1 Tag. $4^h\ 55^m$	5 Tag. $4^h\ 5^m$ 1 Tag. $4^h\ 55^m$	5 Tag. $4^h\ 5^m$ 1 Tag. $4^h\ 55^m$
^{m}	$2^h\ 40^m$	$2^h\ 40^m$	3^h	3^h	$3^h\ 30^m$	$3^h\ 30^m$
$^h\ 45^m$	6 Tag. $6^h\ 45^m$	5 Tag. $6^h\ 45^m$ 1 Tag. $7^h\ 35^m$	6 Tag. $7^h\ 5^m$	5 Tag. $7^h\ 5^m$ 1 Tag. $7^h\ 55^m$	5 Tag. $7^h\ 35^m$ 1 Tag. $8^h\ 25^m$	5 Tag. $7^h\ 35^m$ 1 Tag. $8^h\ 25^m$
		$33^h\ 45^m$ $+ 7^h\ 35^m$		$35^h\ 25^m$ $+ 7^h\ 55^m$	$37^h\ 55^m$ $+ 8^h\ 25^m$	$37^h\ 55^m$ $+ 8^h\ 25^m$
^{m}	$40^h\ 30^m$ 49^h	$41^h\ 20^m$ 50^h	$42^h\ 30^m$ 51^h	$43^h\ 20^m$ 52^h	$46^h\ 20^m$ 54^h	$46^h\ 20^m$ 55^h
^{m}	$8^h\ 30^m$	$8^h\ 40^m$	$8^h\ 30^m$	$8^h\ 40^m$	$7^h\ 40^m$	$8^h\ 40^m$

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TABELLE XIV.

ENTWURF FUER DIE LEHRVERFASSUNG EINER EINHEITSSCHULE OHNE GABELUNG DES OBERBAUES, MIT KURZSTUNDEN VON 40 UND 45 MINUTEN.

Zeiteinteilung: $8–8^{45}$, $8^{55}–9^{40}$, $9^{50}–10^{30}$, $10^{45}–11^{25}$, $11^{35}–12^{15}$, $12^{20}–1$.
45^m 45^m 40^m 40^m 40^m 40^m

Fächer.	Unterbau.						Oberbau.			Sa. der Kurzstunden der einzelnen Fächer.
	VI.	V.	IV.	U. III.	O. III.	U. II.	O. II.	U. I.	O. I.	
Religion	2	2	2	2	2	1	1	1	1	14
Deutsch	6	5	5	4	3	4	3	3	3	36
Lateinisch	—	—	—	—	—	—	8	8	8	24
Griechisch	—	—	—	—	—	—	3	3	3	9
Französisch	—	—	3	4	4	5	2	2	2	22
Englisch	—	3	3	3	3	4	2	2	2	22
Geschichte	1	1	2	2	2	2	2	2	2	16
Geographie	1	1	1	1	1	1	1	1	1	9
Rechnen und Mathem.	4	4	4	4	3	4	4	4	4	35
Naturb. und Hygiene	2	2	2	2	2	2	1	1	1	15
Chemie	—	—	—	—	—	2	2	2	2	8
Physik	—	—	—	—	2	2	2	2	2	10
Schreiben	2	2	—	—	—	—	—	—	—	4
Zeichnen	1	1	1	2	2	2	—	—	—	9
Gesang	6	6	—	—	—	—	—	—	—	47
Gymnastik			5	5	5	5	5	5	5	
Knabenhandarbeit	2	2	2	2	2	—	—	—	—	10
Sa. der Kurzst. in der Woche	27	29	30	31	31	34	36	36	36	290
Stundenverteilung	3 Tag. 4^h 3 Tag. 5^h	5 Tag. 5^h 1 Tag. 4^h	6 Tag. 5^h	5 Tag. 5^h 1 Tag. 6^h	5 Tag. 5^h 1 Tag. 6^h	4 Tag. 6^h 2 Tag. 5^h	an 6 Tagen 6^h			—
Hausarbeit	$1^h 20^m$	$1^h 20^m$	$1^h 30^m$	2^h	$2^h 15^m$	$2^h 40^m$	$2^h 40^m$	3^h	$3^h 30^m$	—
Wöchentl. Beanspruchung durch die E. Schule	$30^h 45^m$	$32^h 35^m$	$34^h 30^m$	$38^h 15^m$	$39^h 45^m$	$44^h 30^m$	$46^h 0^m$	$48^h 0^m$	$51^h 0^m$	—
bisher	$38^h 0^m$	$38^h 0^m$	$41^h 0^m$	$45^h 0^m$	$46^h 30^m$	$49^h 0^m$	49–50^h	$51^h 0^m$	54–55^h	
Differenz	$7^h 15^m$	$5^h 25^m$	$6^h 30^m$	$6^h 45^m$	$6^h 45^m$	$4^h 30^m$	3–4^h	$3^h 0^m$	3–4^h	—

TABELLE XIII.

VERGLEICH ZWISCHEN DER ARBEITSZEIT DER EINHEITSSCHULE UND DER DER BESTEHENDEN SCHULGATTUNGEN DEUTSCHLANDS.

	Vorschule.			Unterbau.						Oberbau.					
	IX.	VIII.	VII.	VI.	V.	IV.	U. III.	O. III.	U. II.	O. II. altsprachl.	O. II. neusprachlich und O. II. naturw.-mathem.	U. I. altsprachlich.	U. I. neusprachlich und U. I. naturw.-mathem.	O. I. altsprachl.	O. I. neusprachlich und O. I. naturw.-mathem.
Zahl der tägl. Kurzstunden der E.	6 Tag. 3^h	5 Tag. $3^h = 15^h$ 1 Tag. $4^h = 4^h$	3 Tag. $3^h = 9^h$ 2 Tag. $4^h = 8^h$ 1 Tag. $5^h = 5^h$	3 Tag. $4^h = 12^h$ 3 Tag. $5^h = 15^h$	5 Tag. $5^h = 25^h$ 1 Tag. $4^h = 4^h$	6 Tag. 5^h	6 Tag. 5^h	6 Tag. 5^h	6 Tag. 5^h	6 Tag. 5^h	5 Tag. $5^h = 25^h$ 1 Tag. $6^h = 6^h$	6 Tag. 5^h	5 Tag. $5^h = 25^h$ 1 Tag. $6^h = 6^h$	5 Tag. $5^h = 25^h$ 1 Tag. $6^h = 6^h$	5 Tag. $5^h = 25^h$ 1 Tag. $6^h = 6^h$
Sa.	18^h	19^h	22^h	27^h	29^h	30^h	30^h	30^h	30^h	30^h	31^h	30^h	31^h	31^h	31^h
Länge der tägl. Schulzeit der E. inkl. Pausen in St. und Min.	6 Tag. $2^h\ 25^m$	5 Tag. $2^h\ 25^m$ 1 Tag. $3^h\ 15^m$	3 Tag. $2^h\ 25^m$ 2 Tag. $3^h\ 15^m$ 1 Tag. $4^h\ 5^m$	3 Tag. $3^h\ 15^m$ 3 Tag. $4^h\ 5^m$	5 Tag. $4^h\ 5^m$ 1 Tag. $3^h\ 15^m$	6 Tag. $4^h\ 5^m$	6 Tag. $4^h\ 5^m$	6 Tag. $4^h\ 5^m$	6 Tag. $4^h\ 5^m$	6 Tag. $4^h\ 5^m$	5 Tag. $4^h\ 5^m$ 1 Tag. $4^h\ 55^m$	6 Tag. $4^h\ 5^m$	5 Tag. $4^h\ 5^m$ 1 Tag. $4^h\ 55^m$	5 Tag. $4^h\ 5^m$ 1 Tag. $4^h\ 55^m$	5 Tag. $4^h\ 5^m$ 1 Tag. $4^h\ 55^m$
Tägl. häusl. Arbeitszeit f. d. Schule in St. und Min. (E. und bestehende Schulgatt.)	$0^h\ 30^m$	$0^h\ 30^m$	1^h	$1^h\ 20^m$	$1^h\ 20^m$	$1^h\ 30^m$	2^h	$2^h\ 15^m$	$2^h\ 40^m$	$2^h\ 40^m$	$2^h\ 40^m$	3^h	3^h	$3^h\ 30^m$	$3^h\ 30^m$
Beanspruchung durch die E. Schule an den einzelnen Tagen in St. und Min.	6 Tag. $2^h\ 55^m$	5 Tag. $2^h\ 55^m$ 1 Tag. $3^h\ 45^m$	3 Tag. $3^h\ 25^m$ 2 Tag. $4^h\ 15^m$ 1 Tag. $5^h\ 5^m$	3 Tag. $4^h\ 35^m$ 3 Tag. $5^h\ 25^m$	5 Tag. $5^h\ 25^m$ 1 Tag. $4^h\ 35^m$	6 Tag. $5^h\ 35^m$	6 Tag. $6^h\ 5^m$	6 Tag. $6^h\ 20^m$	6 Tag. $6^h\ 45^m$	6 Tag. $6^h\ 45^m$	5 Tag. $6^h\ 45^m$ 1 Tag. $7^h\ 35^m$	6 Tag. $7^h\ 5^m$	5 Tag. $7^h\ 5^m$ 1 Tag. $7^h\ 55^m$	5 Tag. $7^h\ 35^m$ 1 Tag. $8^h\ 25^m$	5 Tag. $7^h\ 35^m$ 1 Tag. $8^h\ 25^m$
Beanspruchung durch die Schule in der Woche in Stunden und Min. — Einheitsschule		$14^h\ 35^m$ $+ 3^h\ 45^m$	$10^h\ 15^m$ $+ 8^h\ 30^m$ $+ 5^h\ 5^m$	$13^h\ 45^m$ $+ 16^h\ 15^m$	$27^h\ 5^m$ $+ 4^h\ 35^m$						$33^h\ 45^m$ $+ 7^h\ 35^m$		$35^h\ 25^m$ $+ 7^h\ 55^m$	$37^h\ 55^m$ $+ 8^h\ 25^m$	$37^h\ 55^m$ $+ 8^h\ 25^m$
Sa. — Einheitsschule	$17^h\ 30^m$	$18^h\ 20^m$	$23^h\ 50^m$	30^h	$31^h\ 40^m$	$33^h\ 30^m$	$36^h\ 30^m$	38^h	$40^h\ 30^m$	$40^h\ 30^m$	$41^h\ 20^m$	$42^h\ 30^m$	$43^h\ 20^m$	$46^h\ 20^m$	$46^h\ 20^m$
Sa. — Bestehende Schulgattungen	21^h	23^h	28^h	38^h	38^h	41^h	45^h	$46^h\ 30^m$	49^h	49^h	50^h	51^h	52^h	54^h	55^h
Differenz	$3^h\ 30^m$	$4^h\ 40^m$	$4^h\ 10^m$	8^h	$6^h\ 20^m$	$7^h\ 30^m$	$8^h\ 30^m$	$8^h\ 30^m$	$8^h\ 30^m$	$8^h\ 30^m$	$8^h\ 40^m$	$8^h\ 30^m$	$8^h\ 40^m$	$7^h\ 40^m$	$8^h\ 40^m$

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TABELLE XV.

BEZIEHUNGEN ZWISCHEN KOPFUMFANG UND GEISTIGEN FAEHIGKEITEN.

	Knaben.				Mädchen.			
	Kopfumfang im Mittel.				Kopfumfang im Mittel.			
Alter:	7·5-8·5.	9·6-9·10	9·10–10·2	10·2–10·6	7·5–8·5	9·6-9·10	9·10–10·2	10·2–10·6
Zensuren:								
Sehr gut .	51·46 cm.	53·2 cm.	52·9 cm.	53·8 cm.	50·0 cm.	51·8 cm.	52·0 cm.	52·3 cm.
Gut . . .	50·93 ,,	52·1 ,,	52·5 ,,	52·4 ,,	49·8 ,,	52·0 ,,	51·1 ,,	51·5 ,,
Genügend .	50·33 ,,	51·8 ,,	52·1 ,,	51·9 ,,	49·4 ,,	51·0 ,,	51·2 ,,	50·6 ,,
Ungenügend	49·60 ,,	51·7 ,,	51·4 ,,	51·3 ,.	48·8 ,,	50·1 ,,	51·0 ,,	51·5 ,,

SET DISCUSSION.

THE SCHOOL IN RELATION TO TUBERCULOSIS.

By Arthur Newsholme, M.D., F.R.C.P.,
Medical Officer of Health of Brighton.

Elementary day-schools, with which I am specially concerned, may be considered from the following standpoints:—(1) Whether tuberculosis is spread in them and to what extent; (2) whether the conditions of life and work in such schools tend to bring into activity latent tuberculosis; and (3) as important means for teaching and training children so that we may obtain the aid of the next generation in the rapid elimination of tuberculosis.

The Amount of Tuberculosis at School-Ages.

Before we can arrive at any definite decision on the first point it is necessary to know how much tuberculosis there is among children of school-age. So far as tuberculosis terminating fatally during school-life is concerned, the figures of the Registrar-General's reports enable this point to be settled with some approximation to accuracy for the age-periods five to ten and ten to fifteen, which may be taken as practically coincident with school-ages. Fig. 1 gives the death-rates from pulmonary and from all forms of tuberculosis in the aggregate per million living at each age-period in the decennium 1891–1900 (Decennial Supplement R.G., Dr. Tatham). The interval between the lower and higher space in each column represents the death-rate from all forms of tuberculosis, excluding pulmonary tuberculosis.

It will be noted that at ages under five pulmonary only supplies about one-ninth; at ages five to ten less than one-third; and at ages ten to fifteen not much more than one-half of the total registered mortality from tuberculosis. At higher ages the proportion of pulmonary to total fatal tuberculosis becomes greater.

It will be noted furthermore that at ages five to fifteen the death-rate from pulmonary and from all other forms of tuberculosis in the aggregate is lower than at any other age-period, except at ages over seventy-five. It is clear, therefore, that, as a fatal disease, tuberculosis is relatively uncommon at school-ages. Taking the ages five to fifteen together, it is the registered cause of death each year of only about seven out of every 10,000 children living, while pulmonary tuberculosis only supplies three out of these seven.

As a means of spread of tuberculosis, pulmonary tuberculosis is supreme. By expectoration and by more direct spray-infection it is the chief human source of infection, all other forms of tuberculosis being

almost negligible in this respect. How many cases of pulmonary tuberculosis are there for every fatal case of this disease? In adults the proportion is usually given as three to one, though this is probably much too low. If we assume that there are constantly ten non-fatal cases for each annual death, then three out of every thousand children at school-ages are suffering from pulmonary tuberculosis, on the basis of the figures of the last decennial period.

It does not follow that all these phthisical children are in attendance at elementary schools. Many of them doubtless will not be.

Compare this estimate with the actual results of examination of children in elementary schools. These are given more fully in a paper contributed to this Congress by Drs. Lecky and Horton, of Brighton.

FIG. 1.

Death-rate per million living in each age-period from Phthisis (dotted) and from other forms of Tuberculosis (lined).

I need, therefore, only briefly summarise the results. At my suggestion they very exhaustively examined 806 children, of whom 491 were attending an elementary day-school, 241 in a parochial industrial school, and 74 in the workhouse. These children varied in age from four to seventeen. Only three cases of pulmonary tuberculosis were found—one in the parochial school, one in the workhouse, and one in the elementary school. With these results may be compared the following, which are summarised in the same paper. At Dundee Dr. A. P. Low (1905) found no pulmonary tuberculosis in 517 children; at Dunfermline, Dr. Ash (1905) had a similar result in examining 1,371 children. Dr. Mackenzie, in Edinburgh, found fourteen cases in 600 children; Professor Hay, in Aberdeen, three cases in 600 children; the C.O.S. results Edinburgh

(Canongate Schools) give nineteen cases in 1,318 children. These results vary greatly, and it appears likely that there has been some confusion between bronchitis and phthisis in some of the observations, a very easy mistake unless a very careful examination is made.

Dr. Greenwood, at Blackburn, found 6·7 per cent. of pulmonary tuberculosis in 1,028 children referred to him; but these were children whose fitness for school was already in question, and rather confirm the view, which is, I think, correct, that a child failing with pulmonary tuberculosis usually does not remain in school long before his ill-health is recognised.

Omitting the above negative observations, and Dr. Greenwood's results, which represent a selected sick population, the proportion of children in elementary schools with revealed pulmonary tuberculosis appears to be 1 in 43 (Edinburgh), 1 in 69 (Edinburgh, second series), 1 in 200 (Aberdeen), and 1 in 296 (Brighton). Compare these figures with the estimate of 1 in 333 children based on the national death-rate, and on the assumption that ten non-fatal cases go to every fatal case. I incline to think that there is not, on the average, more than 1 in 300 children in schools showing revealed or diagnosable pulmonary tuberculosis.

Is Tuberculosis spread in Schools?

To what extent are these children a source of infection? Probably very little. Children seldom expectorate; and a child with a troublesome cough would not be kept long in school. It does not appear likely that there is much spread of the infection of tuberculosis from scholar to scholar in schools.

Teachers and caretakers are possible sources of infection. There do not appear to be trustworthy statistics of the amount of pulmonary tuberculosis in teachers. Probably it is somewhat more than in the general community, and, judging by my own experience, I should say that it is more often laryngeal than in the average of consumptives. The medical examination of teachers and of caretakers, as well as of scholars, is obviously indicated as a precautionary measure.

The Amount of latent Tuberculosis in Scholars.

The preceding figures deal with revealed tuberculosis. Latent tuberculosis is nearly, if not quite, always non-infectious. Such latent tuberculosis has, however, important bearings on school hygiene. Notwithstanding the small amount of revealed tuberculosis among schoolchildren, such children, if they die of other diseases, show, in a very high percentage, evidence of tuberculosis, especially in the bronchial glands. Thus Naegeli, at Zurich,[1] found in autopsies of children aged one to five that 17 per cent., and of children aged five to fourteen that 33 per cent., had tuberculous lesions.

Such latent lesions are undoubtedly very frequent in children. I cannot doubt that the true interpretation of these figures, showing as they do heavy incidence of tuberculosis before as well as during school life, is that tuberculous infection in children is nearly all domestic and not scholastic in origin.

[1] Quoted by Dr. H. Méry, "Rapports présentés au Congrès International de la Tuberculose," Paris, 1905, p. 298.

How to deal with latent Tuberculosis.

The presence of such latent foci is a constant source of danger to the children implicated. Although there is at present no statistical evidence to that effect, it is almost certain that in the children of adult consumptives such lesions are present to a preponderant extent, a fact which supplies a valuable indication for preventive treatment. The children of such parents should be periodically examined by the school-doctor, and the card giving the medical state of each scholar should have a column for family history of consumption, and for entering any cases of this disease that have been or may be subsequently notified in the same household. The general notification of pulmonary tuberculosis to the medical officer of health thus forms an essential part of school-hygiene.

The course to be adopted in regard to such children is a part of the problem of general public health administration. Two plans are open—the removal of the children from their homes either temporarily or permanently to homes or schools at the seaside or in the country; or the institutional treatment of the consumptive parent. The former plan has been adopted on a considerable scale in France and elsewhere, and occasionally is the best or the only available line of prophylaxis; the latter plan is the one which has been chiefly employed in England, not intentionally, but incidentally in the relegation of a very large proportion of consumptives among the poor to the workhouse infirmary and to other institutions. Judging by international statistics action on the latter line is more effective than any other. It brings the greatest relief to the family, both from privation and from infection. Supplemented by earlier treatment and training of consumptives in sanatoria it will effect still more good; and if there is to be a choice of remedies, the balance of good lies on the side of measures directed towards removing the patient himself rather than of measures for removing the children from the infected domestic circle. It is evident, however, that both remedies are excellent, and that each consumptive family will need to be considered on its merits, and the most practicable line of action taken. It may be repeated, however, that, given the choice between measures for increasing resistance to infection, and measures for diminishing or abolishing exposure to protracted infection, the latter must always occupy a supreme position.

How to prevent Schools from provoking latent Tuberculosis to activity.

Both in regard to the children under special suspicion of tuberculosis, and in regard to all other children, much can be done to prevent the school from becoming a place in which latent tuberculosis is brought into activity. Overcrowding is the rule in schools. A larger floor-space should be required. Classes are too large, thus straining the voice of the teacher, and making him much more prone to tuberculosis. Ventilation is usually very defective; and the methods of cleansing, involving the raising of dust, need reform. These are obvious points of hygiene. In school hygiene they are prominent because of the grossness with which they are neglected. In the boarding-schools of the middle and upper classes we are familiar with the overwork and over-fatigue due to excessive games, as well as with the insufficient sleep to which Dr.

Acland has drawn attention. In England the children of the great majority of the population almost certainly do not suffer from over-fatigue due to games ; but there is little doubt that many of these suffer from over-fatigue and want of sleep, due to domestic and sometimes to industrial demands, and to defective domestic arrangements. These factors cannot fail to aid in setting ablaze the smouldering fire of latent tuberculosis. In each of these particulars, there is much need for detailed medical supervision of our schools and scholars, and for the adoption of preventive measures, on the lines that have been briefly indicated.

If these and similar reforms are secured the school may be made a most important centre for the prevention of tuberculosis. I think that the principal measures needed for this end may be summarised as follows :—

1. The medical examination of all children on admission to school and periodically afterwards, supplemented as it must be to attain its full value by information systematically acquired in regard to the health conditions of their homes and all living in them.
2. The exclusion of children found to have open or revealed tuberculosis.
3. Special care as to the feeding and general hygiene of children from tuberculous families, including avoidance of fatigue.
4. The frequent wet cleansing of schools.
5. The reduction of overcrowding.
6. The improvement of arrangements for the ventilation and warming of schools.
7. Careful attention to the personal hygiene of all scholars, especially in relation to the removal of adenoids and of carious teeth.
8. The periodical examination of caretakers and teachers, and the avoidance of excessive strain on the voice of the latter or over-fatigue in general.

The Formation of Public Opinion on Tuberculosis in the Schools.

The third head under which tuberculosis may be considered in relation to schools is the subject of discussion at another general meeting of this Congress, and I refrain, therefore, from doing more than mention it. Public opinion is formed in the schools ; and if each teacher and scholar is taught to practise the laws of health, a much more rapid decline of tuberculosis can be secured. What has been said about the supreme importance of domestic infection illustrates this. The inculcation of good habits as to coughing, expectoration, and scrupulous domestic cleanliness, and of knowledge as to the relative value of foods and the dangers of alcoholic drinks, will go far towards making the school a valuable aid in preventing tuberculosis.

SET DISCUSSION.

METHODS FOR THE FIRST AND SUBSEQUENT MEDICAL EXAMINATIONS OF SCHOOL CHILDREN.

By W. Leslie MacKenzie, M.A., M.D., D.P.H.,
Medical Member of the Local Government Board for Scotland.

I.—Objects of Medical Inspection.

The immediate purpose of the medical inspection of school children is to determine the fitness or unfitness of the child for education at school; to keep away from the stress of school life every child that is unfitted by defect or disease to undertake the necessary school work, and to secure that the school work shall be adapted to the child's capacity. The ultimate purpose is, on the one hand, by early medical examination to protect and fortify the child against all disease and disease-producing conditions; on the other, by taking advantage of the diseases and conditions thus revealed, to improve the hygiene of his total environment. The primary and ultimate purposes must be regarded as part of one programme. They determine for us the nature and extent of the examination. They indicate that we must examine, first, the individual organism; second, his relation to his environment both at home and at school.

In this paper I confine myself strictly to the problems thus arising. I assume that the principle of medical inspection of school children has already been accepted. Here I am concerned solely with the practical methods to be followed in organising it. These I shall endeavour to set forth as reasonable deductions from the primary and ultimate objects of the examination.

II.—Conditions of Medical Examination.

The examination must be conducted within school conditions—that is, it must be conducted at school, within school hours, during school work or during intervals of rest. These limitations make it essential that the primary examination shall be strictly practical. By this I mean that it shall be limited to the health conditions that fit or unfit the child for his school work. It ought not to include, except as an incident, details of merely scientific interest—for example, anthropometrical measurements or anthropological observations. These I consider proper materials for special investigation, not for routine medical inspection. Normally the medical examination must be limited to school hours. It must interfere as little as possible with the administration of the school.

III.—Extent of the Examination.

The examination must take account of the two primary factors—first, the sanitation of the environment; second, the health of the individual as affected by environment and heredity.

First, the sanitation of the environment necessarily includes the sanitation of the home and the sanitation of the school. These cannot be exhaustively dealt with when the individual child is examined; but the effects on the individual child may be, with more or less definiteness, determined, and the schedule of examination ought to provide a place for recording the primary elements of environmental sanitation. It ought to include spaces for the occupation of the parents, the size of the house, the number of inmates, and, if possible, direct evidence of the economic condition. In practice the three most important indicators of social condition are the occupation of the father, the number of rooms in the house, and the number of inmates. When these three conditions are known, it is possible to assign mal-nutrition, nervous exhaustion, filthiness of body, etc., to their proper origin in the poverty and overcrowding of the home. Further, these details of the home, easily ascertained at school and easily recorded, constitute a most important point of departure for the public health authority, which has a moderately complete control of the hygiene of the house. I do not see how it is possible to separate the personal examination of the child from the examination of his home environment. The child, through all his school work, is affected by the conditions of his home. Infectious diseases, skin diseases, rickets, mal-nutrition in many varieties, all depend in greater or less degree on the conditions of the home, and they all in some degree affect the working capacity. To some extent the improved environment of the school may neutralise the effects of overcrowding, the nervous irritability and exhaustion due to vermin, uncleanliness and diminished or disturbed sleep. But I consider that one of the most valuable results of the personal examination of the child is the illumination it throws on the conditions of the home.

Second, the examination must include the condition of the child's inherited faculties as directly affected by his environment. It follows that space should be allowed for the cleanliness of body and clothing, the presence or absence of parasites, mal-nutrition due to insufficient food, insufficient sleep, or to domestic neglect. These details are all important in any subsequent investigations of fatigue.

Third, the examination must further include a careful scrutiny of the organs of education—namely, the primary senses of eye and ear; the vital organs—lungs and heart; the respiratory passages—nose and throat; the general muscular condition; the functional condition of the nervous system.

The appended schedule has been devised to fulfil, as far as possible, the conditions here described. With slight modifications it has been employed in the examination of some ten thousand children within school conditions. It is thus shown to be a practical schedule. In other schedules I have examined most of the same details are included along with several others. The chief advantage of a comprehensive schedule is that it furthers the ends of comparative statistics. From the standpoint of preventive medicine, it is certainly advisable to include, so far as it can be ascertained, the "infectious" history of the child. This becomes an important factor in school epidemics. In certain schools it may not be possible to make an exhaustive examination at entrance to school or at any one time in the child's history; but each child's schedule should accompany him through his whole school course, as it

does in Germany, and it is thus always at hand for any fresh entry that may be necessary. It is desirable that the child's health *dossier* should be as complete as possible. Doubtless, for special investigations special schedules are desirable; but for a general routine inspection I consider that this schedule contains the minimum. In Edinburgh the Medical Officer of Schools has had it printed with nine columns for nine possible examinations. In Dunfermline the Medical Officer of the Dunfermline Carnegie Trust has used it with a similar number of columns. It is thus possible to record the examination of a child in any period of his school history. If at any time the whole schedule cannot be filled, the vacant spaces are a convenient reminder of the investigations still to be made.

In the health-schedules common in German schools, almost all the same items are included. But in those used in Wiesbaden and Nuremberg, there is no space for the condition of the home. This I consider a serious omission. When the three primary facts—occupation of parents, size of house and number of inmates—are recorded, the school becomes an important connecting link between the public health authority, the poor law authority, the police authority, and the education authority. When, as in England, the public health authority and the education authority are one and the same, the child's health-schedule is an aid both to the educational and to the sanitary administration. When, as in Scotland, the authorities are different, the school may become an important intelligence department for all three non-educational authorities. The school is always the largest single depôt of public health material we have access to. That is why the examination of any child even for the immediate purposes of his school work necessarily furnishes so many points for further hygienic investigation.

Whether the examination should be made so comprehensive as I have indicated is a legitimate matter for discussion. But no objection to this comprehensiveness can be taken on the ground that it is not practicable within school conditions. This is not an open question. The use of such a schedule is not a question of practicability; it is simply a question of expense and thoroughness. For my part, I regard thoroughness in this department of preventive medicine as of primary importance to the nations; for thoroughness at the early stages of life means lessened disease and disablement at the later stages. As the result of medical inspection, the organisation of treatment is improving, and the improvement must be continued until every sick person has access to treatment. With treatment, however, I am not here concerned; but I mention it to emphasise the seriousness of the work of inspection. To make such inspection perfunctory and casual would be to defeat the objects of it.

IV.—Time of Making the First Examination.

When should the first systematic examination of children be made? Here we have the models of the Continent for our guidance. Clearly, the first examination should be made when the school age is attained—that is, at entrance to school. It is scarcely necessary to argue this point. It commends itself to common-sense, and it has been shown to be within the possibilities of school practice. What service is necessary?

If we take the new entrants of any one year as about 10 per cent. of

the school population, we have in a city like Edinburgh some 4000 children to be examined in each year. If we assume that the school year has forty working weeks of five days each, we get 200 working days in the year. It follows that, on the average, twenty children must be examined each day.[1] But as the mass of the children enter school near the same date, the numbers to be examined within the first two months will greatly exceed twenty per day; and the hours of examination are practically limited to four hours a day. For this purpose, however, we may well dispense with this limitation and extend the time beyond school hours.

It is clear that, for at least two or three months of the year, the chief part of the medical inspector's time will be taken up with the examination of the new entrants. This assumes that he devotes his whole time to school work. If he has the assistance of local practitioners or other skilled men for the time of high pressure, probably a single month or six weeks would suffice to carry through the greater part of the examination. In practice we may say that, on the average, each child means ten minutes of time. In the hands of an experienced officer each child means five minutes. It must be remembered that the examination is not an exhaustive examination for the purposes of treatment, but a first examination to discover whether any treatment or supervision is necessary. At one of the Wiesbaden schools I attended at an examination of thirty children, and these were adequately examined within about an hour and a half or less. The teacher plays an important part in the examination, and economises time at all hands. In the schedule I have sketched out the teacher ought to be able, and normally is able, to fill in about a third of the items. He saves a large amount of the medical inspector's time by making a preliminary examination both of new entrants and of older children. When once a school is well organised and the teacher educated in the work required of him, the rate of examination will easily rise to twenty children in an hour without any sacrifice of thoroughness.

In this matter experience is the best commentary, and it has been many times shown that in this statement I am well within the mark. A large percentage of children are, for school purposes, normal.

V.—Time of Subsequent Examinations.

Here also we have some guidance from actual experience, especially from Continental experience. What is the object of any second medical examination? It is to ensure that, in the course of growth, no child has suffered from the work and stresses of school; but if the first examination has been thorough, and if all those found defective have been rejected for the time, and all those found in need of medical supervision in their mental and physical training have had such supervision, the numbers remaining for systematic re-examination with the same care as at the beginning will be relatively small, and the re-examination will be less elaborate and more rapid.

During his school history, each child usually shows what he is physically and mentally equal to, and the teacher is always there to report any departures from the normal. Accordingly, the second examination need not be such a formidable piece of work as the first, nor is the medical examiner tied so closely to time as at the first examination.

[1] The Medical Officer of Schools has found that he can examine 50 a day within school hours.

The practical question is, How often shall the medical examination be repeated ?

If the medical supervision has been regularly maintained, one examination at age eight to nine, when the infant room is left behind, and another at age eleven to twelve, when the great vascular expansions begin, ought to be sufficient to prevent all serious risks. In Germany there is an examination every second year, and a further examination at the end of the elementary school life, with a view to the advising of parents about the suitability of given occupations for individual children.

The chief points that need re-examination are the eyes, ears, throat, heart and lungs, deformities. But it is probable that, on one or two occasions, apart from the systematic re-examination, each child comes under medical scrutiny. His weaknesses and peculiarities must come into evidence at many stages of his physical training, and if the teachers are awake to the importance of not forcing a defective organ, they will always report a case, even if it is not an aggravated case. All these incidental observations tend to lessen the labour of the systematic inspection, which also has the previous *dossier* to work upon.

It is not, therefore, asking too much when we ask that at least twice in the subsequent course of the school life the primary senses of eye and ear and the primary organs of the chest shall be re-examined.

VI.—The Part the Teacher has in Medical Inspection.

No system of medical inspection can proceed far without the assistance of the teacher ; and wherever I have been able to get first-hand information, I have found that the teachers have taken to medical inspection with enthusiasm. In Scotland I can speak from direct knowledge. There the teachers have been among the chief promoters of the movement. They have everywhere welcomed expositions of what the proposed inspection implies. They have in many places prepared themselves by attendance on special classes. In the one or two places where a Medical Officer of Schools has been appointed, they have offered him the most cordial assistance. Recently, the school teachers of Glasgow collected a vast number of observations on the height, weight, and physical conditions of the children in seventy-three Board Schools. The results have been issued by the Scotch Education Department in a series of most valuable tables, dealing with some 72,457 children, and in Glasgow also a year ago a survey of the eyes of the school children was carried through by the co-operation of the teachers and an oculist, some 50,000 children being examined. Recently, in Edinburgh, the newly-appointed Medical Officer of Schools has, with the cordial co-operation of the teachers, carried through a preliminary enquiry into the acuteness of vision of the school children of Edinburgh. Everywhere the report is that the teachers find this work full of interest. They not only find that the details of it offer a new field of application for the physiological knowledge they all in one degree or another possess, but they realise in every observation how the minor defects and diseases hamper the true work of the school.

These facts have been fully appreciated by the Central and Local Educational Authorities in Scotland. The Provincial Committees now in charge of the training of teachers have decided to include in the curri-

culum seventy hours of practical and theoretical instruction in Personal and School Hygiene. This is not with the intention of making the teachers into amateur doctors, but with the intention of placing them in the position to make a first scrutiny of all their children, and so economise the ultimate and necessary labour of medical inspection. Henceforward, as for the last two years, every teacher trained in Scotland will have as part of his regular training a carefully-planned and balanced course of school hygiene, including not merely the hygiene of the school-room, but also the personal hygiene of children. In all the Training Centres, this information is conveyed by practical observation of actual children. At college and in the schools visited the students are made to examine children at work, as well as on special occasions. The object of the course is not to teach theoretical physiology, but the clinical physiology that afterwards will enable the teacher to suspect when a child is hindered in his growth and work by some abnormality or disease.

For further details as to the nature of the work done for teachers and by them, I must refer to a General Report recently issued by the Scotch Education Department on this subject.

I can further say from direct knowledge that the teachers in Scotland have shown great readiness and competence in the preliminary surveys of the children. Their interest has been aroused, and I know that they will become the mainstay of any system of medical inspection that may be established in Scotland.

In the compiling of the health *dossier*, the teacher is able to provide essential details as to age, occupation of parents, size of house, regularity of attendance, hours of rest and work. He can also record height and weight. He can make a first scrutiny of eyes and ears. He can, with sufficient accuracy, record, for further examination, deformities and defects and obvious symptoms. It is unnecessary to enter into much detail here. It is easy enough to see that the teacher is at every stage of the child's school life an indispensable and reliable coadjutor in medical inspection. Above all, he is in constant touch with the parent. The school, after all, is a specialised organ of the home, and school education is a specialised function of the home. How intimate the relation of home and school is may be gathered from the Report recently issued by the Edinburgh Charity Organisation Society on "The Physical Condition of 1400 School Children, together with Some Account of their Homes and Surroundings."

VII.—Medical Examination in Higher and Secondary Schools.

It goes without saying that, if medical examination is of importance at the entrance to the elementary schools, it is of still greater importance at the time of entrance to the higher and secondary schools. It is now that the most critical stages of growth supervene. Work increases in severity. There is rapid growth of the heart. There is an increased tendency to violent exercises of all kinds, both physical and mental. Everything points to the greater necessity for medical supervision both of boys and of girls. The transition from boyhood to manhood and from girlhood to womanhood needs every care that the resources of medicine can offer. The great Public Schools have long recognised this; but their practice in carrying out the recommendations of their medical advisers

is not always very encouraging. One has only to read what Dr. Clement Dukes and Dr. Acland write about the hours of sleep to learn that the superstition of perpetual exercise as the cure for all diseases still dominates even the great schools. This is natural so long as the doctor is looked on merely as a person that provides a remedy when something goes wrong. Doubtless we shall see some advance in school practice when the doctor is recognised as the official whose chief function is not to cure disease but to prevent it. The methods applicable to those great institutions of the wealthier classes do offer us some guidance for practice in the earlier stages of education. Fortunately, the parents, if they choose to use it, have power enough to enforce their views on the governing bodies, and to the parents we may safely leave the case.

VIII.—The Administrative Aspects of Medical Inspection.

Now that medical inspection of some sort is about to become a reality all over rural Britain as well as in the large town centres, the administrative problem is naturally becoming more pressing. Already in England there is a conflict of views, and each side has much to say for itself. In Scotland the administrative difficulty has hardly yet reached the stage when sides must be taken, and possibly it may never reach that stage. For in the organisation of educational boards and systems, we have followed a somewhat different line from England. One cardinal difference there certainly is—namely, that by the present law in England the Education Authority and the Public Health Authority are the same body of men. In Scotland they are different, and, so far as one can judge, are likely for some time to remain so. In England the *ad hoc* principle applies rather to officials than to corporations. In Scotland the *ad hoc* principle still applies to corporations and officials alike. It must be allowed that the difference in the law makes some difference to the practice likely to succeed in each country.

I speak of England and English institutions with some hesitation. But it seems clear from the public discussions of the question that the administrative problem resolves itself into this—Shall the organisation and direction of the medical inspection of school children be assigned to the Medical Officer of Health or to special School Doctors acting independently of the Medical Officer of Health ?

In favour of assigning the duty to the Medical Officer of Health are the following considerations :—

1. He represents the preventive functions of the sanitary authority, and, as we have seen, the work of medical inspection is in the largest sense preventive.

2. He controls the sanitation of the child's environment—drainage, water, overcrowding, food, ventilation, housing, plans of building and the like.

3. He has access to the schools for the purpose of examining children for infection, and he has the control of all the apparatus for managing infectious diseases. This I put quite broadly. It may not be strictly true of all the sanitary authorities of England, but it is sufficiently exact for the argument.

4. He necessarily has a hygienic interest in the child before it begins to go to school, during its stay in school and after its school days are over.

At no stage can we say that the child ceases to be a matter of concern to the sanitary authority and its specific officers. The child cannot be divided up into abstractions—a home-child, a school-child, a street-child, a factory-child, a workshop-child, and so on. It is the same child right through all its hygienic relationships and the medical officer may maintain that, as the school is the largest depôt of children for the time being, he should have the administrative advantage that direct personal examination can give to the preventive functions of the sanitary authority.

5. He knows that the physical condition of the child is an index to the sanitary condition of the home and he wishes to have this new line of entry to the home in order to improve the child's and the parent's environment.

In favour of assigning the direction of the work to a special Medical Officer of Schools acting independently of the Medical Officer of Health, but co-operating with him, are the following considerations :—

1. The Medical Officer of Schools approaches the child for the purpose of fitting it and keeping it fit for education, of preventing injury from school conditions, of exploiting to the full such faculties as it may have.

2. He is not indifferent to the hygiene of the environment, which always affects the working capacity, and he can always secure the co-operation of the Medical Officer of Health in improving the environment both at home and at school.

3. He finds that the most important problem in the school is the problem of fatigue, which is a function of many variables; not all of them directly hygienic, some of them being specifically educational. He maintains that, for the investigation of the conditions of fatigue, the present training and experience of medical officers of health is not of exceptional value.

4. Though concerned with the child's hygienic environment, he is not limited in his outlook to the grosser circumstances named roughly "drains" and "water." He works—not from the environment to the child, but—from the child to the environment. He maintains strongly that the personal and detailed examination thus made necessary is the proper sphere of a new specialism.

In these opposing contentions there is much reason; but the opposition does not seem to me so acute as the two sides imagine.

If the Medical Officer of Health is to restrict himself to the present somewhat narrow conception of public health, he is certain to miss essential points in the medical inspection of school children. The current and traditional views of public health concern themselves primarily and almost exclusively with the environment; the individual person is secondary. But even this cannot strictly be maintained; for the infectious disease hospitals compel the treatment of patients—not as an incident, but—as an essential part of the prevention of disease. Further, the movement towards the better care of individual infants shows that the era of environmental hygiene is now passing into the era of personal hygiene. And this is entirely in line with the medical inspection of school children. It is impossible to maintain that the school child is essentially different from the child in other social relationships. If it is legitimate to require early notification of births in order that better direc-

tions may be given for the nurture of the new-born infant; if it is legitimate to require the cleansing of the home that the child in his pre-school age may be better tended; if it is legitimate to make individual examinations of school children in order that the infectious diseases, including in that list all the infections common among children, may be controlled; if it is legitimate to record the condition of children in order to test the goodness or badness of ventilation, lighting and heating; then it cannot be maintained that the individual examination of children in order to prevent or reduce all preventable diseases is out of line with the legitimate work of a Medical Officer of Health. But it must be clearly laid down that, if the Medical Officer of Health is either to direct the organisation of medical inspection or to take part himself in the detailed work, he can do so effectively only when he so expands the conception of preventive medicine that it includes all preventable diseases whatsoever.

There are many indications that this conception of preventive medicine is already becoming a reality. Who shall actually carry out the work, therefore, becomes more a matter of practical convenience than of administrative principle. In England, where the sanitary authority is also the education authority, the expediency of maintaining two independent officers will depend entirely on the amount of work to be done. Under the new conception they will both be Medical Officers of Health, and there should be no greater difficulty in defining their relative positions than there is at present in defining the relation between the Medical Officer of Health and the Superintendent of an infectious disease hospital. In the towns, it would be a misfortune if the supervision of the personal hygiene of school children should be considered in any way irrelevant to the personal hygiene of the community as a whole. In the rural areas, the natural officer to assume the direction of medical inspection would be the county Medical Officer of Health. In Scotland, I should think it probable that, although the school authorities are likely to remain independent, they will normally accept the direction and service of the Medical Officers of Health as far as possible. But in this there is nothing to exclude the appointing of either whole-time specialists or local practitioners to do such parts of the work as require their special service.

I am not inclined to lay down strict lines of progress in this matter. But one administrative mistake we should do everything possible to avoid—namely, the organising of inspection in such a way that the local authorities will be tempted to offer illusory salaries to part-time officers already in practice, and neglect to appoint some central officer, whose duty it will be to organise and correlate the work. Of England I do not speak, because the details are not familiar to me. But of Scotland I can speak with knowledge. When the Public Health (Scotland) Act of 1867 was passed, the execution of it was placed in the hands of the parochial boards of the individual parishes. The result was that medical officers were appointed at salaries of £1 and £2 and £3, or other trifling sum, and retained merely as advisers. For twenty years, the administration of Public Health in Scotland within the rural areas was a name and nothing more. In 1889, the parishes ceased to be the unit of administration for public health; the counties and county districts became the new areas; the county councils and district committees (or district councils) became the new authorities for public health. The result was the appointment of a large number of whole-time Medical Officers of Health for the counties.

The result of this in turn has been that, in seventeen years, the organisation of public health in the Scottish counties has gone forward by leaps and bounds, and the amount of work actually accomplished to the satisfaction of all classes has been immeasurably greater than in the preceding fifty years. In Scotland, the lesson of this experience is not likely to be forgotten. It seems to me that, if we could preserve the continuity of growth when medical inspection, which is also preventive medicine, comes to be organised on the large scale, we shall save a generation of perfunctory work and illusory salaries. We shall, at the same time, preserve to the Education Authorities the widest freedom in the detailed execution of the medical examinations. For we must have regard to the fact that the Education Authority is to the school child in the place of the parent. We need not rigidly confine the school authority to using the public health service as it at present exists ; but among the options this will probably be the first. If it should be, I have little doubt that, at least in Scotland, the authorities for public health and the Authorities for Education will amalgamate their medical services until it will be impossible to draw a line between the health service and the medical service of schools.

IX.—The Functions of the Central Authority.

In the English Bill[1] now before Parliament, there is a clause making medical inspection of school children compulsory on all the school authorities. There is nothing in the Bill itself to indicate what part the Central Education Authority will play either in the prescription of the nature and extent of the examination or in the organisation of it. In the Scotch Education Bill, also before Parliament, there is a clause that enables Education Authorities to provide for the medical inspection and examination of schools and school children ; but the authorities are placed under obligation to carry out such inspection when required by the Scottish Education Department. Further, power is reserved to the Department to prescribe the nature and extent of the examination, which must be conducted to the satisfaction of the Department. The Department will doubtless take such means as may be necessary to inform itself of the best methods of organising inspection in the various localities. It is, in my opinion, an advantage not to enact that medical inspection shall be made compulsory on all authorities at once. The Department will be able to enforce inspection first in the localities where it is most called for and where the best organisation is possible. A certain uniformity of method will become established in the various localities. The experience in one locality will be of material assistance to the authorities of other localities. A controlled and criticised system of inspection will thus gradually extend under the direction of the Central Education Department. Meanwhile, the Local Government Board for Scotland as the central authority for public health has been steadily drawing closer the medical supervision of schools from the purely public health standpoint. The two Departments work in the closest interrelation, and I have little doubt that, as time goes on, the public health

[1] This Bill became an Act in 1907. The Board of Education have established a Medical Department. A directive Circular and a model Schedule have been issued (1908). The Schedule is printed on front and back of a stiff card.

organisation and the organisation for medical inspection of schools will grow practically into a single system.

As a member of a Government Department, I can offer no criticism of either proposal. I confine myself merely to a general indication of what the course of administrative evolution is likely to be under the two Central Government Departments[1] that I have the honour to represent officially at this Congress.

APPENDIX A.

Form of Schedule for First and Subsequent Medical Examinations.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

(*Schedule to be adapted for at least three examinations. To accompany child through school-life. To be kept in Portfolio by class teacher.*)

School Board District.....

Name of School.....

I. Address, Occupation of Parents, &c.

Session began .....
Date of Medical Inspection.....
Name of pupil.....
Date of birth.....day.....month.....year
Place of birth.....
Age—years and months.....
Residence or address.....
Number of rooms in house.....
Number of family and lodgers in house.....
Father's occupation .....
Mother's occupation (if any).....
Does pupil work before school hours ?.....
Does pupil work after school hours ?.....
If so, at what occupation ?.....

II. School Standard or Class, and Mental Capacity.

Number in class .....
Teacher's opinion of mental capacity—E = excellent, G = good, M = medium, D = dull, Def. = defective.....

III. School Attendance.

Regular or Irregular.....
Number of possible attendances in last school year.....
Actual Attendances of pupil in last school year .....
If irregular, causes of irregularity.....
If from illness, name disease.....
Has attendance been improving ?.....

[1] The Scotch Education Department and the Local Government Board for Scotland.

IV. Physical Exercise.

In Schoolroom—
Forms of systematised exercise.....
Daily duration .....

In Playground—
Forms of exercise, including games.....
Approximate daily duration.....

In Gymnasium—
Forms of exercise.....
Daily duration .....
Is instructor always present ?.....

What field games, if any ?.....
Weekly duration .....

Are breathing exercises taught ?.....

V. Personal Appearance.

Complexion—ruddy (R.), medium (M.), pale (P.).....
Health appearance—good (G.), medium (M.), bad (B.).....
Brightness and alertness—good (G.), medium (M.), bad (B.).
State of nutrition—stout (S.), medium (M.), thin (T.).....

VI. Cleanliness.

Of Clothing—good (G.), medium (M.), bad (B.).....
Of Body—good (G.), medium (M.), bad (B.) .....

VII. Measurements (Exact date.....).

Weight (with usual indoor clothing but without boots) .....st.....lbs.
Height, standing (without boots)....centimetres or....ins
Girth of chest (immediately above nipples and over scapulæ : arms hanging).....
Greatest inspiration.....centimetres or.....ins.
Greatest expiration.....centimetres or.....ins.
Average of expiration and inspiration....cms. or...ins.

VIII. Teeth.

Cleanliness—good (G.), medium (M.), bad (B.).....
Are they brushed daily ?.....
Number of permanent teeth visible above gums.....
Regularity—regular (R.), medium (M.), irregular (I.).....
Shape of teeth—good (G.), medium (M.), bad (B.).....
Number of decaying teeth—(1) First set.. (2) Second set...
Number of second set lost.....upper jaw....lower.....

IX. Eyes.

Colour—dark (D.), medium (M.) ; Light—(1) all light blues (L.B.) ; (2) all other light eyes (L.O.).....
Colour perception, normal (N.), defective (D.) (stating colours in which defective).....
Keenness of vision (smallest Snellen's type read at six metres), right .....left .....both .....

IX. EYES—*continued.*

Refraction of eyes—hypermetropia (H.), myopia (M.), astigmatism (A.), right .....
left .....
Is there any squint present ?.....
Convergent .....
Divergent .....
Other diseases, or any deformity of eyes or eyelids.....
.....

X. EARS.

Keenness of hearing—extreme distance at which watch heard, the normal distance being.....(1) right ear.....feet; (2) left ear.....feet. (If speaking test employed, specify extreme distance at which whisper is heard.)
Diseases of ears.....

XI. NOSE AND THROAT.

Sense of smell.....Is pupil a mouth-breather ?.....
Diseases (*e.g.*, enlarged tonsils catarrhal tonsilitis, ulceration, pharyngitis, adenoids, or other nasal obstruction, elongation of uvula, enlarged cervical glands) .....

XII. DEFORMITIES.

(1) Congenital (*e.g.*, harelip, cleft palate, club-foot).....
(2) Acquired (*e.g.*, flat-foot, knock-knee, bowed legs).....

XIII. DISEASES.

(1) Skin .....
(2) Glands .....
(3) Bones (*e.g.*, rickets, tubercle, caries, acute inflammation) .....
(4) Joints (*e.g.*, rickets, tubercle, caries, stiffness).....
(5) Heart—Regularity .....
Valvular condition .....
Pulse—character .....
(6) Lungs .....
(7) Abdominal organs (*e.g.*, tabes, hernia—umbilical, inguinal, or femoral) .....
(8) Other diseases or injuries.....
(9) Vaccination (number, character, and diameter of cicatrices) .....
(10) Previous infections .....

XIV. OTHER OBSERVATIONS (*e.g.*, feeding, clothing).....
.....
.....
.....

Signature.....

(Headings I., II., III., IV., height and weight to be filled in by teacher. Teacher also to make first note of observed defects of eye, ear, breathing, etc.)

Note.—This Schedule is based on the schedule originally devised by Professor Matthew Hay for the investigation required by the Royal Commission on Physical Training (Scotland).

APPENDIX B.

EDINBURGH SCHOOL BOARD.

Regulations for the Medical Officer of Schools.

1. He shall advise the Board as to new sites, plans of new schools, and also, when required, as to school apparatus; he shall exercise a general supervision over the ventilation, heating, lighting, and cleanliness of the schools; he shall periodically inspect all school lavatories and other sanitary installations, and he shall report immediately to the head-master, and, if necessary, to the Superintendent of Works, any insanitary conditions discovered.

2. On receiving intimation of an outbreak of infectious disease among the pupils attending any school, he shall at once inquire into the outbreak; he shall take such action as may be immediately necessary, and he shall, as soon as practicable, report the result of this inquiry to the Board, and to the Medical Officer of Health for the city, and shall co-operate with him in any measures he may propose for the prevention of infection.

3. He shall advise the Board as to the necessity for periodic disinfection and cleansing of the schools, with a view to the prevention of disease.

4. He shall make such examination as the Board may require as to the mental and physical condition of children selected for Special Schools or classes, and shall grant any necessary certificates.

5. He shall medically superintend all Special Schools and classes; he shall keep the Board informed of the mental and physical progress of the children, and he shall indicate any measures that may be advisable for the preservation or promotion of their health.

6. On receiving intimation from the Chief Attendance Officer that a child is absent from school on account of alleged illness, he shall, where a medical certificate is not produced, inquire into the case and report to the Board.

7. He shall advise the Board as to the children remitted to any day industrial school, and shall make such medical examinations and reports as may be required.

8. To the extent and in the form prescribed from time to time by the Board, he shall medically examine the pupils attending the schools, and shall preserve and maintain on approved schedules a record of the examination of each child.

9. He shall organise and superintend such systematic measurements and observations as the Board shall institute or approve—for example, measurements of height and weight, improvement or deterioration of physique, and the like.

10. He shall from time to time inspect the physical exercises given in the schools, and shall report to the Board any practices that he considers injurious to individual pupils.

11. If any child is specially reported to him by the head teacher as suffering from any ailment or defect or injury, he shall as soon as possible examine the child and give such directions as may be necessary.

12. When required, he shall medically examine candidates appointed to positions under the Board, junior students and intending

junior students, and report in cases of employees absent owing to illness.

13. He shall, after such examination as he may find necessary, certify the fitness of teachers or pupils to undergo special courses of physical training.

14. He shall, by lecture, demonstration or otherwise, instruct the teachers in the methods of recognising the common ailments and defects of school children; in the practice of first aid for school accidents; in the general hygiene of the school and class-room, and in the physiological principles that underlie physical training.

15. He shall keep such records and books as the Board may prescribe or approve; he shall submit an annual report on the work done, and he shall make such special reports as the Board may require.

16. He shall perform any other medical duties that may be from time to time required by the Board; but medical or surgical treatment shall be no part of the Medical Officer's duty.

Adopted by the Board on 17th December, 1906.

MÉTHODES POUR L'EXAMEN MÉDICAL DES ÉCOLIERS AU DÉBUT ET AU COURS DE LEURS CLASSES.

Rapport présenté par le Docteur H. Méry.

Je n'ai pas l'intention, dans ce rapport, de revenir sur les raisons qui justifient la nécessité de l'examen médical des écoliers. Tous ceux qui s'intéressent à l'hygiène scolaire savent combien cet examen médical individuel est indispensable pour la bonne surveillance et le bon développement de la culture physique et intellectuelle de l'enfant.

Le médecin scolaire doit surveiller la croissance de l'écolier, il doit s'assurer qu'elle se fait d'une façon normale; il doit le préserver, dans la mesure du possible, des diverses maladies aiguës ou chroniques qui peuvent le frapper à l'école, et pour cela il est nécessaire de savoir quels sont les côtés faibles du jeune enfant, en particulier s'il existe chez lui une prédisposition à cette maladie si générale et si redoutable qu'est la tuberculose. Il est nécessaire aussi, si l'on veut faire rendre à la culture intellectuelle de l'écolier son maximum, de savoir quelles sont les tares, les prédispositions physiques qui peuvent modifier celles-ci, et il faut aussi s'occuper particulièrement des fonctions qui sont plus spécialement en jeu dans la vie des écoliers, c'est-à-dire de l'audition et de la vision.

Dans ce rapport, nous allons essayer de montrer comment les diverses méthodes employées pour l'examen des écoliers doivent concourir pour obtenir d'une façon simple, la plus rapide et la plus méthodique possible, les indications nécessaires pour réaliser le but de l'hygiène scolaire, c'est-à-dire tâcher d'obtenir la meilleure culture physique et intellectuelle de l'enfant.

J'exposerai plus particulièrement ce qui a été fait, et surtout qui ce a été proposé, en France.

La base de l'hygiène scolaire c'est l'examen médical individuel de chaque écolier à l'entrée à l'école primaire.[1] On pourrait le faire également à l'entrée à l'école maternelle.

Monsieur Binet avait proposé d'examiner seulement les suspects qui seraient désignés par l'instituteur de façon à diminuer la besogne du médecin scolaire, mais il ne semble pas possible d'agir ainsi, car, certains enfants peuvent porter des tares importantes que l'examen superficiel fait par un maître ne révélerait pas. Il faut un examen médical individuel à l'entrée de chaque enfant à l'école. Sur ce point tout le monde est d'accord. Comme c'est l'examen le plus important dans la vie scolaire de l'enfant, nous nous occuperons tout d'abord de savoir comment cet examen sera pratiqué, sur quels points il devra porter, j'allais ajouter par qui il sera pratiqué, mais il est bien entendu que cet examen d'entrée doit être toujours pratiqué par le médecin.

Il est très nécessaire de bien fixer les points sur lesquels doit porter l'examen et les méthodes à employer, car si on laisse à chacun le soin d'examiner les enfants suivant son procédé les résultats obtenus ne seront point comparables et on perdra presque tout le bénéfice de cet examen. Il est absolument indispensable que l'on fixe au moins dans chaque pays et de préférence d'une façon presque internationale des méthodes uniformes d'examen des écoliers; autrement tout resterait chaos et anarchie.

Un premier point qui doit précéder l'examen médical proprement dit, c'est le récolement des renseignements fournis par les familles sur la santé antérieure de l'enfant. Il serait préférable que ce fut le médecin qui recueille ces renseignements. Si le médecin ne peut pas les obtenir directement des parents, ce qui occasionnerait peut-être bien des dérangements, on pourrait demander au médecin de la famille de fournir ces renseignements, ou bien alors l'instituteur au moment des inscriptions des enfants à l'école pourra recueillir directement des parents ces renseignements sur la santé antérieure des élèves.

Quel sera tout d'abord le programme de l'examen médical d'entrée ? On peut diviser les points sur lesquels il doit porter en trois parties :

1. Le Signalement Anthropométrique concernant les mensurations (poids, taille, mesure du thorax, dynamométrie).

2. Le Signalement Physiologique, c'est-à-dire l'examen des fonctions particulièrement utiles pour la scolarité—Vision, Audition.

3. La Signalement Organo-anatomique, qui est le véritable examen médical. Il devra porter sur l'état général, sur la gorge et le système lymphatique, sur la peau et le cuir chevelu, sur le squelette, en particulier la colonne vértebrale et surtout sur le thorax, cœur et examen des poumons.

Il est nécessaire que nous tâchions d'établir sur les parties les plus importantes de ce programme un accord d'où se dégageront la plupart des méthodes adoptées par les médecins scolaires. C'est à ce prix seulement qu'on aura des résultats pouvant être comparés et permettant l'utilisation de l'effort énorme que nous allons demander aux médecins scolaires.

[1] Je laisse volontairement de côté la question de l'examen médical des écoliers de l'enseignement secondaire, qui évidemment devra être plus complet.

EXAMEN MÉDICAL D'ENTRÉE.

Il serait désirable d'avoir dans chaque école un local spécial pour les examens médicaux dans lequel on pourrait d'ailleurs réunir les divers objets nécessaires pour ces examens, en particulier pour les mesures anthropométriques comme la bascule et la toise.

Il est intéressant également de fixer la tenue dans laquelle les enfants devront être mensurés ; cela est d'ailleurs très simple. Les enfants, garçons ou fillettes, enlèveront leurs chaussures, garderont le bas ou chaussettes. Pour les vêtements du corps, les garçons garderont la chemise et le pantalon, les fillettes la chemise et la jupe. C'est dans cette tenue qu'on procédera tout d'abord à la prise du signalement anthropométrique.

EXAMEN ANTHROPOMÉTRIQUE.

Les instruments nécessaires pour l'examen anthropométrique sont une balance exacte pour les pesées et une toise, analogue d'ailleurs à celles dont on se sert dans les conseils de révision.

Il n'y a rien de particulier à signaler pour les pesées, qui seront faites dans le costume indiqué plus haut. Il sera préférable de faire les pesées dans la matinée ; on a remarqué en effet que le poids ne variait pas depuis le matin jusqu'avant le déjeuner.

En ce qui concerne la taille, elle devra être prise debout, l'enfant ayant les talons rapprochés ; la toise doit toucher le vertex. Chez les fillettes, il faudra avoir soin d'éviter l'erreur qui pourrait tenir à la chevelure, chignon, etc.

Mensurations Thoraciques.—Les diverses mensurations thoraciques que l'on peut prendre sont : le périmètre thoracique, les diamètres thoraciques. M. Binet a proposé le diamètre bisacromial.

Pour le périmètre thoracique, les instruments nécessaires sont soit le centimètre ordinaire, simple, soit le centimètre symétrique qui a été employé par M. le Professeur Grancher et par Rosenthal, c'est-à-dire un centimètre souple qui au lieu d'être gradué de fig. 1 à 150 est formé de deux moitiés symétriques graduées de 1 à 75 réunies par les deux chiffres 1 qui sont accolés.

On a proposé de mesurer le périmètre thoracique à des hauteurs diverses, en particulier immédiatement sous les aisselles, c'est le périmètre axillaire, au niveau du mamelon, c'est le périmètre mammaire, enfin au niveau de l'appendice xyphoide, c'est le périmètre xyphoidien.

Le périmètre mammaire doit être rejeté en particulier lors qu'il s'agit de fillettes, à cause du développement possible des seins. On a objecté au périmètre axillaire la cause d'erreur que pouvait donner la présence des omoplates et de la difficulté d'avoir des mesures exactes, justement à cause de la présence de ces deux os.

Le périmètre xyphoidien ou xypho-sternal est beaucoup plus constant et beaucoup plus facile à prendre. Le point de repère pour ce périmètre doit être l'union de l'appendice xyphoide et du sternum ; le ruban métrique doit être placé horizontalement, les bras étant pendants le long du corps.

Le périmètre axillaire, le thorax étant vide, à un an présente 45 centimètres. Il augmente environ de deux centimètres par an.

Le périmètre xyphoidien est également de 45 cm. à un an et il aug-

mente environ de un centimètre et demi par an, c'est-à-dire un peu moins que le périmètre axillaire.

On a beaucoup critiqué les résultats donnés par la mesure du périmètre thoracique ; il est certain que, d'une part, les résultats obtenus varient souvent avec les divers opérateurs et manquent de précision absolue ; d'autre part, il n'y a pas de parallélisme entre l'amplitude respiratoire et le périmètre thoracique. Madame Nageotte dit avec raison que des gens à poitrine large souvent ne respirent pas et il arrive tous les jours de voir des sujets à poitrine large qui ne font pour ainsi dire pas pénétrer l'air dans leur poitrine.

La mesure du périmètre thoracique à l'état de repos respiratoire n'aurait d'intérêt que s'il y avait des documents intéressants à tirer de l'étude des rapports du périmètre à la taille. L'étude de ces rapports a été fait pour l'adulte et utilisé en particulier par les compagnies d'assurances.

La formule adoptée par les compagnies d'assurances est :

$$\frac{\text{Circ. thoracique} \times 100}{\text{Taille}},$$

c'est-à-dire ce que l'on appelle l'indice de vitalité des sujets examinés.

En établissant la durée moyenne de l'existence des assurés morts par tuberculose, le Docteur Snellen a vu que pour ceux qui attestent un indice de vitalité au-dessous de 50, la durée moyenne de la vie avait été de trente-huit ans ; pour ceux qui avaient un indice de vitalité de 50 et au-dessus, la durée moyenne de la vie était de 45,6.

J'ai recherché si, chez les enfants reconnus suspects à la suite des examens pratiqués par Monsieur le Professeur Grancher et ses élèves dans les écoles de la ville de Paris, le rapport de la circonférence thoracique à la taille présentait une modification particulière. Il m'a semblé que l'indice de vitalité était plus faible chez les enfants suspects que chez les enfants normaux, mais je n'ai pas réuni des documents suffisants pour être absolument affirmatif sur ce point. D'ailleurs on a montré que la formule qui servait à évaluer le rapport de la taille et du périmètre thoracique chez l'adulte ne pouvait être utilisée chez l'enfant dans les mêmes conditions, car chez l'enfant le rapport varie suivant l'âge et le périmètre choisi. D'après Godin, la circonférence sus-mammaire serait légèrement inférieure à la demi-taille à $13\frac{1}{2}$ ans ; elle lui serait équivalente à 14 ans et à $14\frac{1}{2}$ ans, puis la dépasserait ensuite de un, puis de deux centimètres.

La mensuration thoracique qui paraît de beaucoup préférable, c'est la mesure du périmètre thoracique envisagée au point de vue de la constatation du degré d'ampliation thoracique, c'est-à-dire la différence entre l'expiration maxima et l'inspiration maxima. On a ainsi la mesure de l'amplitude respiratoire.

Madame Nageotte a démontré toute l'importance de cette mensuration, et comme nous l'avons dit plus haut, elle a démontré qu'il n'y avait pas de parallélisme entre l'amplitude respiratoire et le périmètre thoracique. C'est l'amplitude respiratoire qu'il est intéressant de mesurer.

M. Boureille a montré que l'amplitude respiratoire chez les sujets sains était de 5 à 11 centimètres dans 97,2 % des cas ; chez les malades de dispensaires, les chiffres de 4 cm. et au-dessous se trouvent chez 96 % des sujets. L'amplitude de 5 et au-dessous n'existe que chez 7 % des malades de dispensaires, d'où il en conclut que, tous les individus ayant

moins de cinq centimètres d'amplitude respiratoire sont presque toujours des tuberculeux. Il est évident que ces données ne s'appliquent point à l'examen des enfants, néanmoins, elles montrent toute l'importance de cette recherche de l'amplitude respiratoire.

Il sera facile lorsque l'on aura accumulé à cet égard des documents suffisants, de juger de la valeur probablement également fort importante de cette mensuration chez l'enfant.

Voici comment Madame Nageotte mesure l'amplitude respiratoire : Elle laisse l'enfant debout les bras pendants le long du corps et mesure le périmètre axillaire passant en avant sur la deuxième côte, le ruban étant tenu horizontalement. Elle mesure également l'amplitude respiratoire xyphoidienne. L'amplitude axillaire d'après Madame Nageotte serait de deux centimètres et demi avant huit ans et de trois centimètres et demi après huit ans. L'amplitude xyphoidienne serait de deux centimètres et demi avant huit ans et de 3 cm. à $3\frac{1}{2}$ cm. après huit ans. Chez les enfants ayant fait de la gymnastique respiratoire, l'amplitude augmente de façon considérable ; elle est de 4, 5 et 6 centimètres.

On a proposé également de mesurer les diamètres du thorax et de rechercher les variations de l'amplitude respiratoire par les variations des diamètres du thorax aux divers temps de la respiration.

Les instruments nécessaires à la mensuration des diamètres thoraciques sont des compas d'épaisseur, en particulier le compas de Démeny. On a pris pour les mensurations des diamètres thoraciques les mêmes points de repère que pour le périmètre thoracique, le point de repère xypho-sternal.

Il y a d'assez grandes difficultés pour prendre le diamètre transverse. Il est nécessaire de tracer une ligne horizontale circulaire, partant du point de repère xypho-sternal signalé plus haut. Le Dr. Dufestel a montré que l'on obtient des différences assez marquées qui tiennent à ce que la ligne circulaire passe tantôt au niveau d'une côte, tantôt au niveau d'un espace intercostal. Suivant que les branches du compas d'épaisseur sont appliquées au niveau d'une côte ou au niveau d'un espace intercostal, il peut y avoir un centimètre au moins de variation, et ceci a d'autant plus d'importance que les chiffres de l'amplitude respiratoire que donne l'examen par les diamètres sont extrêmement faibles et ne dépassent pas $\frac{1}{2}$ centimètre, 1 cm., 2 cm. au maximum. On comprend toute l'importance que peut avoir une erreur de technique d'un centimètre dans de pareilles conditions. C'est presque l'impossibilité absolue de mesurer l'amplitude respiratoire par ce procédé. L'amplitude respiratoire au contraire mesurée au moyen du périmètre thoracique donne des chiffres de comparaison beaucoup plus étendus puisqu'elle varie de 1 à 7 centimètres. C'est là donc une très grosse objection pour la valeur des mensurations des diamètres thoraciques.

Le rapport du diamètre antéro-postérieur au diamètre transverse a été appelé indice thoracique. Il augmente d'une façon continue avec l'âge. Il ne semble pas fournir des renseignements bien utiles en particulier au point de vue de l'amplitude respiratoire. D'ailleurs les uns, comme Fourmentin, calculent l'indice thoracique en divisant le diamètre

transverse par le diamètre antéro-postérieur et en multipliant par 100, c'est-à-dire :

$$\frac{D\,T \times 100}{D\,A\,P}.$$

Godin prend la formule absolument inverse :

$$\frac{D\,A\,P \times 100}{D\,T}.$$

Si la mesure des diamètres thoraciques paraît inférieure au point de vue de l'évaluation de l'amplitude respiratoire, à celle du périmètre thoracique, les renseignements fournis par la mensuration du diamètre bisacromial, proposée par M. Binet, ont encore à cet égard beaucoup moins de valeur, car l'augmentation de la capacité respiratoire et des autres diamètres thoraciques n'a aucune corrélation avec l'augmentation du diamètre bisacromial (Dufestel). D'ailleurs, M. Binet ne défend pas cette mensuration avec des arguments bien péremptoires ; il dit : " Ni la distance bisacromiale, ni le périmètre thoracique ne sont en rapport avec la capacité vitale, mais la distance bisacromiale est plus facile à prendre."

Cela n'est pas un argument suffisant, car on pouvait trouver toute autre mensuration d'une partie quelconque du corps à laquelle l'argument pourrait être appliqué.

M. Binet dit également que cette mensuration du diamètre bisacromial n'oblige pas à mettre la poitrine à nu.

Tout cela, en résumé, nous permet de conclure, que si aucun des procédés de mensuration du thorax n'est absolument parfait, celui de tous qui paraît à l'heure actuelle donner les meilleurs résultats, c'est la recherche de l'amplitude respiratoire par la mensuration du périmètre thoracique à l'état d'inspiration et d'expiration maxima. C'est cette mensuration que doivent surtout pratiquer les médecins scolaires et qu'il est nécessaire de régler d'une façon uniforme. Il y aurait peut-être intérêt à rechercher la valeur du rapport du périmètre thoracique moyen à la taille, c'est-à-dire de l'indice de vitalité, mais nous manquons actuellement de documents à cet égard.

La spirométrie, qui serait un procédé d'une précision beaucoup plus grande, puisqu'il permettrait d'évaluer la capacité respiratoire de chaque enfant, présente deux inconvénients fort graves : d'une part il exige un appareil couteux, d'autre part il est presque impossible à pratiquer chez les enfants au-dessous de 12 ans.

Je rappelle que d'après M. Maurice Dupont, inventeur d'un spiromètre assez simple, il serait intéressant d'établir le coefficient de la capacité respiratoire par rapport au poids du corps. Ce coefficient qui normalement serait de 50 centimètres par kilogramme diminuerait beaucoup au début de la tuberculose pulmonaire et pourrait être regardé comme un signe de diagnostic précoce. Mais pour les raisons signalées plus haut aucune recherche de ce genre n'a été faite chez l'enfant.

Une autre mensuration qui a été pratiquée par M. le Docteur Dufestel, médecin-inspecteur des écoles de la Ville de Paris, c'est la recherche de la force musculaire de l'enfant par la dynamométrie, mais cette recherche manque également au moins actuellement de bases précises. Elle paraît fournir des résultats très variables suivant l'état de force physique et d'entraînement de chaque enfant.

Examen Physiologique.—Vision ; Audition.

Vision.—Les instruments nécessaires pour la recherche de l'acuité visuelle sont les tableaux dits " échelles de Snellen " ou de Monnoyer. Voici, d'après notre collègue, le Docteur Terrien, ophtalmologiste des hôpitaux, comment on doit opérer pratiquement.

1. On doit placer l'enfant à cinq mètres des tableaux d'acuité visuelle, dans une pièce bien éclairée.

2. Tout enfant ayant une acuité visuelle normale doit lire la dernière ligne de l'échelle de Snellen. S'il ne lit pas la dernière ligne, on lui fera lire les autres lignes en commençant par le haut et en regard de la ligne à laquelle il s'arrête est toujours indiquée l'acuité visuelle correspondante, 1/10ème, 1/6ème, 1/4, etc.

3. La diminution de l'acuité visuelle peut être due à une altération quelconque de l'œil, comme une taie de la cornée, mais souvent elle est simplement la conséquence de la myopie. Pour voir si la myopie doit être incriminée, il suffit de rapprocher l'enfant du tableau et au fur et à mesure qu'il se rapproche, l'enfant lit distinctement des caractères qu'il ne lisait pas à cinq mètres.

Les deux yeux doivent être examinés séparément.

Audition.—Les instruments ou les méthodes nécessaires pour l'examen de l'audition sont plus difficiles, ou du moins donnent des résultats d'une précision beaucoup moindre que dans l'examen de la vision.

Il est assez difficile de trouver un acoumètre parfait ; les médecins et en particulier les médecins auristes ont proposé deux moyens principaux ; l'audition de la montre ou de la parole chuchotée. A Nuremberg on considère comme normale l'audition de la voix à dix mètres ; c'est également, je croix, le chiffre adopté par M. le Docteur Lermoyez. Au contraire, Denker, lors du dernier Congrès International d'Hygiène Scolaire, demandait comme acuité normale, celle qui était capable d'entendre la parole chuchotée à vingt mètres. Cela prouve tout simplement que tout le monde ne chuchote pas de la même façon.

Les mêmes difficultés se présentent lorsqu'on prend la montre comme acoumètre ; toutes les montres n'ont pas la même intensité de tic-tac.

Le Docteur Lubet-Barbon critique la parole chuchotée ; ce serait pour lui un moyen très médiocre de mesurer l'acuité auditive. Théoriquement, en effet, la parole chuchotée a la même intensité chez tous les sujets. Elle est produite par les vibrations des cordes vocales, lorsque la poitrine est en état d'expiration maxima et qu'aucune colonne d'air expiré ne vient faire vibrer les cordes vocales. En pratique, cette condition est très difficile à réaliser, et il est rare, d'après le Docteur Lubet-Barbon, qu'il ne se produise pas une légère expiration complémentaire d'air résidual au moment de la voix chuchotée ; cela varie avec les sujets, et de même l'intensité de la voix chuchotée.

Pour le Docteur Lubet-Barbon, le meilleur acoumètre serait encore la montre à condition de déterminer d'abord à quelle distance la montre dont on se sert est entendue par un sujet normal. Cette distance est en général de deux mètres.

A côté des procédés médicaux destinés à mesurer l'audition, il y a un procédé pédagogique qui n'est pas à négliger ; c'est le procédé de la dictée à voix haute tel que l'a indiqué le Docteur Gellé, et adopté par M. Binet.

On place l'élève face au tableau noir sur lequel il doit écrire et le maître dicte à voix haute placé à huit mètres derrière l'élève. Peut-être est-ce là encore pour les écoles le procédé le meilleur de juger l'audition de l'enfant.

Examen Médical.—Organo-Anatomique.

Les méthodes d'examen ont surtout de l'importance en ce qui concerne l'examen des poumons et de la colonne vertébrale. Pour les autres organes, il n'y a pas de procédé particulier à recommander aux médecins scolaires. On emploiera les procédés actuels d'examen des divers organes. C'est ainsi que je ne m'arrêterai pas sur l'examen de l'état général de la gorge, du cœur et de l'appareil circulatoire, du cuir chevelu, de la peau, de l'appareil dentaire. La recherche des ganglions du cou, du creux axillaire demande simplement à être signalée. Il n'y a pas de procédés particuliers à recommander, mais il ne faut pas oublier de rechercher avec soin tous les signes révélateurs des végétations adénoides.

Pour l'examen du thorax, l'inspection tout d'abord permet de rechercher s'il n'existe pas quelques réseaux veineux sous-cutanés traduisant une adénopathie médiastine probable ; elle montrera également si l'amplitude respiratoire, dont nous avons dit plus haut toute l'importance, est égale des deux côtés de la poitrine. A cet égard d'ailleurs la palpation permettra de compléter cet examen de l'amplitude respiratoire, palpation avec les deux mains placées en forme de collier autour de la base du cou et de la partie supérieure du thorax, et qui permet quelquefois de sentir très nettement l'inégalité d'amplitude respiratoire d'un côté de la poitrine.

La palpation avec les mains ainsi placées est également un excellent procédé pour la recherche de l'étendue des vibrations vocales.

La percussion, dans certains cas, montrera des modifications de tonalité au niveau des parties supérieures de la poitrine, fosses sous-claviculaires, sus-épineuses, etc.

L'auscultation surtout devra être pratiquée d'une façon méthodique, et mon regretté Maître, le Professeur Grancher, a indiqué d'une manière magistrale les règles que l'on devait suivre (Congrès International de la Tuberculose de 1905).

L'enfant doit respirer d'une façon suffisante, sans excès, la bouche légèrement entr'ouverte. Le médecin doit ausculter et comparer des points symétriques de la poitrine ; il doit s'occuper presque uniquement des modifications de l'inspiration dans ces points symétriques. On connaît les caractères de l'inspiration normale, douce, moelleuse, régulière ; à l'état pathologique, elle se modifie dans son timbre, devenant rude, dans sa quantité, en s'affaiblissant, dans sa tonalité, inspiration basse, dans son rythme, inspiration saccadée. Ces modifications seront surtout à rechercher dans les régions sous-claviculaires, dans les fosses sus- et sous-épineuses, et dans certains cas, à la base.

Le Professeur Grancher a décrit les trois étapes de la période de la germination de la tuberculose ; la première étape où il n'existe que des modifications de l'inspiration ; la seconde étape où l'on trouve en même temps une augmentation des vibrations thoraciques. La troisième où apparaissent simultanément les modifications de la tonalité à la percussion et l'expiration prolongée.

A côté des modifications du poumon lui-même il est nécessaire de rechercher les signes qui traduisent la présence des ganglions, des adénopathies trachéo-bronchiques ; ces signes, signes de percussion et d'auscultation, devront être recherchés dans les régions ganglionnaires, région inter-scapulaire, région supérieure du sternum en avant.

L'examen de la colonne vertébrale demande lui aussi à être pratiqué d'une façon méthodique. Pour bien juger des déformations préexistantes ou de telles que l'école a fait naître lors des examens ultérieurs il est nécessaire de mettre à nu tout le haut du corps de l'enfant, de rechercher avec soin la hauteur relative des deux épaules, des deux omoplates, de regarder également la dimension respective de ce que l'on appelle le triangle de taille, c'est-à-dire du triangle formé par le bras pendant le long du corps, par le bord inférieur et latéral du thorax et par le bord externe de la région lombaire.

Il faut enfin terminer l'examen par une observation attentive de la direction de la ligne des apophyses épineuses. C'est de cette façon qu'on pourra déceler une scoliose commençante ; en ce qui concerne la cyphose, elle se caractérisera par le rapprochement des épaules en avant, par l'écartement des omoplates en arrière, par la tendance de l'enfant à porter la tête enfoncée entre les deux épaules.

Tels sont les différents points qui, dans le premier examen, devront surtout attirer l'attention du médecin.

Cet examen d'entrée doit être réservé à peu près complètement au médecin ; cependant pour certains points la collaboration de l'instituteur doit être demandée et il est nécessaire de bien établir le rôle respectif du médecin et de l'instituteur dans cet examen d'entrée.

Le médicin doit conserver la responsabilité de tout l'examen, mais il peut demander à l'instituteur son concours sur quelques points, et en particulier nous pensons que l'instituteur pourra recueillir des renseignements sur la santé antérieure des élèves, et prendre, suivant les indications données par le médecin scolaire, des mensurations concernant la taille et le poids. Il faudra, bien entendu, que le médecin ait tout d'abord montré à l'instituteur comment il entend que ces mesures soient prises, de manière à ce qu'elles le soient toujours de façon identique et que les pesées et les mensurations de taille soient toujours comparables.

Une grosse question est celle de savoir si l'examen de la vision et de l'audition doit être réservé au médecin. M. Binet a formellement réclamé pour l'instituteur l'examen de ces deux fonctions très scolaires, et il est évident qu'en particulier la mesure de l'audition par la méthode des dictées dont nous avons parlé plus haut, pourrait être faite, semble-t-il, avec avantage par l'instituteur. Néanmoins, nous pensons que le médecin ne doit pas laisser à l'instituteur l'appréciation de ces deux fonctions si importantes, et s'il y a un examen pratiqué par l'instituteur, il n'empêchera pas l'examen médical ; les deux peuvent d'ailleurs se compléter utilement.

La durée de l'examen médical d'entrée, d'après les données et d'après les méthodes que nous venons d'exposer, paraît devoir demander, pour le médecin habitué à ce genre d'examen, d'un quart d'heure à vingt minutes.

Des experiénces ont été faites de ce système d'examen par divers médecins-inspecteurs des écoles de la Ville de Paris, présents d'ailleurs

à ce Congrès, en particulier par les Docteurs De Pradel, Butte et Dufestel, qui sont venus confirmer l'horaire que je viens d'indiquer. Je parle ici du premier examen médical.

Examen Complémentaire des Enfants Suspects.

Les enfants qui lors de l'examen d'entrée auront présenté des phénomènes pathologiques de quelque ordre qu'ils soient, pourront subir un examen médical complémentaire, sur la partie ayant paru faible et paraissant demander un examen plus approfondi. On s'adressera soit à un auriste, soit à un oculiste, pour l'audition et la vision. C'est ce qui se fait également à Paris pour le cuir chevelu par les soins du Docteur Sabouraud de façon à obtenir une recherche plus méthodique de la teigne.

En ce qui concerne les enfants paraissant présenter des phénomènes suspects du côté des voies respiratoires ou du côté des ganglions trachéo-bronchiques, on pourra pratiquer l'examen radioscopique. L'examen radioscopique, d'après les recherches que nous avons pratiquées en particulier avec le Docteur Rist et le Docteur Zuber, ne paraît pas donner des résultats plus précis que l'examen clinique ; peut-être y a-t-il là un moyen de déceler plus nettement les adénopathies trachéo-bronchiques, mais il est nécessaire de continuer des recherches à cet égard avant d'être fixé d'une façon certaine.

L'examen radioscopique nous a paru intéressant au point de vue de la recherche de l'amplitude respiratoire dont nous avons déjà dit à plusieurs reprises toute l'importance. Chez les enfants ayant pratiqué sous la direction du Docteur Dufestel des exercices méthodiques de gymnastique respiratoire, nous avons été frappé de la façon dont tous les diamètres de la poitrine se développaient, de la façon dont le diaphragme s'abaissait, en particulier, de la façon dont le cœur et les viscères se séparaient de la colonne vertébrale, laissant dans l'examen oblique un espace clair beaucoup plus marqué que chez les enfants insuffisamment exercés.

Comme procédé d'examen complémentaire et de dépistage de la tuberculose chez les écoliers, il semble qu'on ait le droit de fonder de grandes espérances sur l'ophtalmo-réaction qui vient d'être mise à la portée du monde médical par le Professeur Calmette de Lille. Mais il est trop tôt pour que nous puissions apporter à cet égard des statistiques précises et nous devons rester encore sur la réserve, tout en fondant sur cette méthode les plus grandes espérances, les plus légitimes d'ailleurs d'après les résultats déjà portés à l'actif de la méthode.

Examen des Écoliers au cour de leurs Classes.

Carnet sanitaire ; Collaboration du Médecin Scolaire et de l'Instituteur.

Il est nécessaire de réduire au minimum possible ces examens pour ne pas trop surcharger les médecins scolaires.

En ce qui concerne les enfants normaux, la Commission Permanente de la Tuberculose du Ministère de l'Intérieur Français, a pensé qu'il suffirait de demander aux instituteurs de faire semestriellement les mensurations de la taille et des pesées. Il a paru tout à fait impossible et inutile de

demander aux médecins de faire plusieurs fois dans l'année des examens complets de chaque écolier, sans qu'aucune raison vienne justifier ces examens.

L'instituteur signalera au médecin les élèves qui lui paraîtront avoir besoin d'un examen médical nouveau soit parce qu'il aura jugé que leur santé physique a fléchi, soit tout simplement quelquefois parce qu'il trouvera un fléchissement du travail intellectuel, inexpliqué pour lui, et qui pourrait avoir pour substratum un mauvais état de santé physique, soit parce qu'il aura eu connaissance de maladies survenues aux enfants dans le cours de l'année.

A la suite de ces mensurations semestrielles, le médecin fera défiler devant lui les enfants, ayant devant les yeux leurs carnets sanitaires avec les mesures anthropométriques prises par l'instituteur, et il pourra retenir tel ou tel enfant qui lui paraîtra mériter un nouvel examen médical, mais il ne fera jamais un nouvel examen médical individuel des enfants normaux sans qu'une raison vienne le justifier.

Les enfants suspects, en particulier les enfants suspects au point de vue de la tuberculose, auront évidemment besoin de visites plus fréquentes et plus complètes. Ces visites pourraient être trimestrielles. Le médecin scolaire doit d'ailleurs se déranger chaque fois qu'un cas particulier l'exige. Nous rappelons que le médecin scolaire ne doit jamais appliquer aucun traitement.

Les renseignements qui auront été recueillis au cours des divers examnes médicaux pratiqués sur les écoliers devront être consignés sur un carnet sanitaire individuel. La Commission Permanente Française de la Tuberculose a adopté un type de carnet sanitaire qui est à peu près exactement semblable, sauf rectifications, au modèle ci-joint que j'ai l'honneur de présenter au Congrès.

Il est à désirer que les résultats obtenus par les examens pratiqués suivant des méthodes comparables, puissent être rapprochés les uns des autres, de façon à permettre l'établissement de moyennes indispensables surtout pour les mensurations anthropométriques. Il y a là un travail préparatoire qui nous permettra de juger de la valeur des différentes méthodes que nous proposons à l'attention du Congrès.

Ces moyennes pourront porter sur l'accroissement en poids, en taille, et il est probable d'ailleurs qu'il y aura des variations dépendant des différences de races dans les pays où seront prises les mensurations.

C'est surtout pour les mensurations thoraciques que l'établissement des moyennes est absolument désirable, pour nous permettre d'avoir une opinion plus ferme sur la valeur de ces diverses mensurations, et pour déterminer celle qui doit être soumise à l'approbation générale. Sauf cette réserve, nous pensons pour les raisons exposées plus haut, que c'est la mesure de l'amplitude respiratoire.

Dans le carnet sanitaire que nous présentons ce chapitre a été réservé d'une façon complète et on a décidé pour la taille et le poids d'établir des graphiques qui sont d'une lecture et d'une comparaison plus intéressante et plus rapide. On trouvera dans ces carnets scolaires d'ailleurs les divers points d'examen individuel que nous avons signalés plus haut.

Il est nécessaire de bien délimiter la situation respective du médecin scolaire et de l'instituteur ou du professeur au point de vue de leur collaboration dans les examens et dans la tenue des carnets scolaires.

Le rôle de l'instituteur doit se borner à prendre, sous la responsabilité

du médecin, les mesures anthropométriques de poids et de taille semestriellement. Il pourra également recueillir des renseignements sur la santé antérieure des élèves au moment de leur inscription à l'école et il aura aussi le devoir de signaler les élèves qui lui paraîtraient dignes d'un nouvel examen médical, soit parce que leur travail intellectuel a subi une baisse brusque, soit parce qu'il se serait aperçu que leur santé physique laissait à désirer.

Il est nécessaire que l'instituteur ne puisse avoir connaissance des carnets sanitaires une fois que le médecin scolaire y aura inscrit les notes prises lors de l'examen médical d'entrée. Ces carnets doivent rester uniquement sous la garde du médecin qui ne s'en dessaisira sous aucun prétexte ; mais avant que l'examen d'entrée ait été pratiqué, l'instituteur pourra inscrire sur le carnet les renseignements recueillis lors de l'inscription de l'enfant à l'école, sur sa santé antérieure.

Quant aux mensurations prises semestriellement par lui, il devra les consigner sur une feuille spéciale commune aux divers élèves d'une même classe et il communiquera cette feuille du type ci-joint au médecin, qui transcrira ces chiffres sur la feuille graphique du carnet sanitaire à cet usage.

Le carnet sanitaire restera donc la propriété exclusive du médecin scolaire. Il pourra être communiqué aux parents sur leur demande.

Que devriendra le carnet à la fin de la vie scolaire de l'enfant ? La majorité des membres de la Commission Permanente de la Tuberculose a été d'avis qu'il fallait détruire ce carnet. Pour d'autres et pour bon nombre de mes confrères, médecins-inspecteurs des écoles, il serait préférable que le carnet fut remis ensuite à la famille et restat sa propriété ainsi que celle de celui qui a été examiné. On avait pensé que ces carnets pourraient être utiles au moment de l'examen de santé pour le service militaire. Il y a des arguments valables pour les deux solutions. Je ne me chargerai pas actuellement de trancher la question.

Je proposerai au Congrès les conclusions suivantes :

Chaque écolier doit subir lors de son entrée à l'école primaire un examen médical individuel. Cet examen doit avoir un programme et des méthodes uniformes. Il est nécessaire que le Congrès Internationale d'Hygiène scolaire se prononce d'une façon nette à cet égard et indique les points sur lesquels doit porter l'examen d'entrée et autant que possible les méthodes à employer.

Nous proposons de diviser l'examen en trois parties :

Première partie : Examen anthropométrique comprenant le poids, la taille, et les mensurations thoraciques. La meilleure mensuration thoracique actuellement paraît être la recherche de l'amplitude respiratoire par la comparaison du périmètre xypho-sternal à l'état d'inspiration et d'expiration maxima.

Deuxième partie : Examen physiologique de l'audition et de la vision suivant les procédés exposés plus haut.

Troisième partie : Examen médical organo-anatomique qui portera sur l'état général, la peau, le cuir chevelu, l'appareil dentaire, l'appareil circulatoire et surtout sur l'état des poumons et de la colonne vertébrale.

Pour l'examen des poumons, il sera nécessaire d'employer une méthode comparable en s'inspirant autant que possible de la méthode employée par le Professeur Grancher.

Les enfants anormaux pourront subir des examens médicaux complémentaires. Les examens ultérieurs seront réduits à leur minimum.

Les enfants normaux subiront semestriellement des mensurations pratiquées par les instituteurs sous la responsabilité du médecin scolaire.

La collaboration de l'instituteur et du médecin dans les examens des écoliers doit être fixée de façon précise et de façon que le secret médical ne puisse être violé. L'instituteur se bornera à pratiquer certaines mensurations, taille et poids, et à recueillir des renseignements sur la santé antérieure des élèves au moment de l'entrée à l'école.

Les résultats obtenus par l'examen médical des écoliers seront transcris sur le carnet sanitaire individuel qui restera la propriété, exclusive du médecin scolaire.

L'établissement de moyennes tirées d'un grand nombre d'examens permettra de juger encore mieux de la valeur des procédés d'examen que nous proposons, en particulier des procédés anthropométriques.

Nous demandons au Congrès de nommer une Commission Internationale chargée de recueillir des documents permettant l'établissement de ces moyennes.

METHODE DER ERSTEN UND DER FOLGENDEN AERZTLICHEN UNTERSUCHUNGEN VON SCHULKINDERN.

Von Dr. Heinrich Kokall, Stadtphysikus-Stellvertreter, Brünn.

Fuer die ärztliche Untersuchung von Schulkindern Methoden aufzustellen, erscheint aus doppelten Gründen als ein schwieriges Unternehmen. Einerseits umfassen die Untersuchungen ein ungemein grosses Arbeitsfeld, in welchem die gesamten Zweige medizinischen Wissens, innere und chirurgische Krankheiten, Augen-, Ohren-, Nervenleiden etz. zur Anwendung kommen, wobei gleichzeitig auf den speziellen Unterricht, die Schule und das Elternhaus, auf örtliche und zeitliche Verhältnisse Rücksicht genommen werden soll und muss; andererseits läuft die persönliche Note des Untersuchenden durch die Aufstellung von Methoden Gefahr in eine gewisse Zwangslage zu geraten.

Trotzdem ist eine Besprechung dieses Themas wünschenswert, zumal sich wenigstens in den deutschen Landen auf diesem Gebiete eine Art Vererbungstheorie und Anpassungsvermögen geltend gemacht hat, wodurch ein Stillstand zu befürchten wäre. Die meisten Vorschriften über die Untersuchung von Schulkindern beruhen derzeit auf dem sogenannten Wiesbadener Systeme, welches ich, um nicht Wiederholungen zu bringen, als allgemein bekannt voraussetze. Doch will ich gleich hervorheben dass durch diese Ausführungen keineswegs ein umstürzlicher Angriff beabsichtigt ist. Es dürfte aber vorteilhaft sein, gewonnene Erfahrungen zu verwerten, und eventuell Besseres, das bekanntlich stets des Guten Feind ist, zum Weiterausbaue heranzuziehen.

Ueber die prinzipielle Seite der Frage wird wohl kaum eine Meinungsverschiedenheit aufkommen. Die ärztliche Untersuchung und Ueberwachung der Schulkinder ist zunächst dazu bestimmt, alle etwa durch die Schule bedingten, direkten und indirekten Schädigungen der

Gesundheit und die Benachteiligung eventuell schon bestehender minderwertiger körperlicher und geistiger Veranlagung von Schülern durch den Unterricht hintanzuhalten. Gleichzeitig müssen aber diese schulärztlichen Untersuchungen als ein mächtiger erzieherischer Faktor auf dem Gebiete des Volkswohles, nicht allein auf die heranwachsenden Generationen, sondern rückwirkend auch auf das Elternhaus betrachtet werden.

Eine einwandfreie hygienische Beschaffenheit des Schulgebäudes erscheint als unverrückbarer Grundsatz und demgemäss ganz aus dem Bereiche dieser Betrachtungen ausgeschaltet. Die schulärztlichen Untersuchungsmethoden müssen, wenn sie ihren Zweck erfüllen sollen, zunächst praktische Ziele verfolgen. Unter diesen Gesichtspunkten betrachtet, haben daher auch alle Methoden den Stempel des "Simplex veri sigillum" zu tragen. Umständlichere Untersuchungen oder solche, welche rein wissenschaftliche Zwecke verfolgen, sind von der Schule auszuschliessen. Hiedurch wäre schon *eine* Richtschnur für die Methoden gegeben, eine andere ergibt sich aus den zeitlichen Erfordernissen. Ich hebe aus der Summe derselben hervor: Anweisung von Sitzplätzen nach der Körpergrosse und Berücksichtigung der mit Augen- und Ohrengebrechen behafteten Kinder hiebei, Befreiung von einzelnen Unterrichtsgegenständen wie Turnen, Gesang, Handarbeiten etz., Verweisung in Hilfsklassen für Schwachbegabte, Zuteilung in Kurse wegen Sprachfehlern, Rückgratsverkrümmungen, Entsendung in Seehospize, Rekonvaleszenten- und Ferienheime, Nachschau bei übertragbaren Leiden, Einleitung einer Zahnbehandlung etz. etz.

Ueberblickt man die bisher geübten ärztlichen Untersuchungsmethoden bei Schulkindern, so wird man unschwer als wundesten Punkt die Art der *ersten* Untersuchung herausfinden.

In den meisten Vorschriften für den schulärztlichen Dienst ist die allgemeine, einen weiten Spielraum zulassende Bestimmung aufgenommen, es solle der Schulartz die Kinder innerhalb der ersten Woche bereits einer *äusseren* ärztlichen Besichtigung unterziehen, behufs Ermittlung übertragbarer Krankheiten und Ungeziefer, sowie behufs Zurückweisung nicht schulfähiger Kinder. Bei dieser Methode kann sehr vieles versämt werden und dabei ist die Volksschule, welche ich hier in erster Linie im Auge habe, mit ihrer gesetzlichen *Schulpflicht* im Alter von 6 bis 14 Jahren in Oesterreich, nicht in der gleich vorteilhaften Lage, wie die Mittelschule etwa in geistiger, oder das Militär in körperlicher Beziehung eine geeignete Auslese treffen zu können. Um wieviel mehr bedarf daher der Volksschüler ärztlicher Beaufsichtigung hauptsächlich bezüglich der übertragbaren Leiden, die gerade das Kindesalter am häufigsten heimsuchen. Wir wissen schon seit langer Zeit, dass übertragbare Krankheiten in die Schule hineingetragen und auf dem Wege durch die Schule weiter verbreitet werden. Ich will diese Tatsache auf Grund der in der Stadt Brünn gewonnenen Erfahrungen durch einige Daten erläutern, wozu ich die für die Schule wichtigsten Infektionskrankheiten, Diphtheritis, Scharlach und Masern hervorhebe. Die nachfolgende Zusammenstellung beruht bei Diphtheritis und Scharlach auf einem 25-jährigen, bei Masern auf einem 20-jährigen gewissenhaften Ergebnisse, da für diese Krankheiten in Brünn eine obligatorische Anzeigepflicht bestand und besteht und derselben seitens der Aerzte gewissenhaft nachgekommen wird.

Es erkrankten insgesamt an den hauptsächlichsten Infektionskrankheiten: Diphtheritis, Scharlach, Masern, im schulpflichtigen Alter von 6–14 Jahren in den einzelnen Monaten.

Erkrankt . . im Monate	Jan.	Feb.	März.	April.	Mai.	Juni.	Juli.	Aug.	Sept.	Okt.	Nov.	Dez.
1350 Fälle *Diphtheritis* vom Jahre 1882–1906	117	127	116	95	86	92	68	78	110	177	150	134
2464 Fälle *Scharlach* vom Jahre 1882–1906	226	180	182	216	228	239	177	107	138	276	245	250
4451 Fälle *Masern* vom Jahre 1887–1906 .	575	352	242	158	167	196	284	84	102	581	861	849
Gesamtsumme 8265 Fälle . . .	918	659	540	469	481	527	529	269	350	1034	1256	1233

Diese Darstellung weist in sinnfälliger Weise für die Stadt Brünn darauf hin, dass die Hauptferien, welche in Oesterreich in die Zeit vom 15. Juli bis 15. September eines jeden Jahres fallen, im Durchschnitte für das schulpflichtige Alter den Tiefstand in der Ausbreitung der vorgenannten Infektionskrankheiten bezeichnen. Zur Unterstützung der berechtigten Annahme, dass dieser Tiefstand auf den Schulschluss zurückzuführen ist, möchte ich auch auf eine zweite Remission der Kurve, welche im Monate April auffindbar ist, verweisen, die zwangslos durch die Unterbrechung des Schulunterrichtes in den Osterferientagen, welche zumeist in diesen Monat fallen, gedeutet werden kann. Hiezu bemerke ich, dass diese Vorkomnisse sich in den anderen Alterslagen der Kinderzeit nicht nachweisen lassen. Was für die Stadt Brünn gilt, dürfte auch für andere Städte zutreffen und liesse sich auch mit gewissen Einschränkungen auf andere übertragbare Leiden bazillärer und parasitärer Natur ausdehnen.

Diese Verhältnisse schliessen eigentlich schon die Forderung in sich, dass mit der bisher beobachteten Methode der oberflächlich und spät einsetzenden ersten Untersuchung gebrochen werden möge. Ohne mir einzubilden, die übertragbaren Krankheiten hiedurch aus der Welt schaffen zu können und auf die Gefahr hin, auf Widerspruch zu stossen, stelle ich, eingedenk des Wahrspruches *mens sana in corpore sano* die Forderung, dass der Schularzt neben dem Lehrer bei den Schuleinschreibungen seinen Sitz habe. Denn was der Lehrer dem Schüler in geistiger, das muss diesem der Arzt in gesundheitlicher Beziehung sein. Ich stelle mir den Gang der ersten Untersuchung, beziehungsweise der Einschreibung folgendermassen vor. Jedes zur Einschreibung gelangende Schulkind wäre zunächst in ein für den Arzt bereit gehaltenes Untersuchungszimmer zu weisen; hier wäre die Untersuchung der Kinder am blossen Körper vorzunehmen. Man komme mir nicht mit den Einwendungen der Verletzung des Schamgefühles, welches, ein Kunstprodukt der Kultur, dem gewissenhaften Schularzte gegenüber gewiss nicht am Platze ist, und mit der auf der Tagesordnung stehenden sexuellen Aufklärung der Schuljugend sonst im argen Gegensatze stünde. Zudem werden die Kinder zu den Schuleinschreibungen fast ausnahmslos von den Angehörigen begleitet, ein Umstand, welcher geeignet ist, diese Untersuchungen zu erleichtern, die Schule und die schulärztliche Institution den Eltern volkstümlicher zu machen. Der Arzt könnte hiebei mit raschem Blicke entscheiden, ob

etwa Ungeziefer, Schuppung nach Masern, Scharlach oder irgend ein übertragbares Hautleiden bestehe, Symptome, die nur am blossen Körper sicher erhoben werden können, ein Abziehen der Augenlider kann über Vorkommen von Trachom, folliculärer Conjunctivitis etz., die vermittels eines stets neuen Holzspatels vorgenommene Besichtigung der Mundhöhle über übertragbare und anderweitige Leiden daselbst, erschöpfenden Aufschluss geben. Leicht würden auch anderweitige Krankheitsanlagen oder Gebrechen, Lymphome, Caries, Hernien, Scoliosen und Kyphosen etz. dem geübten Auge des Arztes offenbar. In zweifelhaften Fällen könnte auch der Impfzustand festgestellt werden. Durch Anstellen an einen in der Wand angebrachten Massstab wird sofort die Körperlänge des Kindes abgelesen, welche bei Verteilung der Sitzplätze in den Bänken Verwertung finden muss, eventuell könnte auch hier schon das Körpergewicht durch die Wage behufs Beurteilung des allgemeinen Körperzustandes für die Zukunft bestimmt werden.

Nicht unerwähnt möchte ich eine Massregel lassen, welche in Brünn geübt wird und darin besteht, dass seitens der Sanitätsbehörde den einzelnen Schulleitungen ein Verzeichnis aller in den letzten sechs Wochen vor Schulbeginn vorgekommenen Infektionskrankheiten unter Anführung der Namen, des Charakters, Wohnortes und des Alters der Erkrankten zugeht. Dies kann zur Orientierung des untersuchenden Arztes eine wichtige Handhabe behufs Hintanhaltung übertragbarer Leiden bilden.

Alle bei dieser ersten Untersuchung gewonnenen Daten wären naturgemäss in die Gesundheitsscheine einzutragen ; die vorliegenden Tabellen von Kindern welche die Schule schon besuchten, könnten Verwendung finden und wertvolle Fingerzeige abgeben. Der Schularzt hat es nun in der Hand, ein Kind als schulfähig zu erklären oder nicht. Alle Kinder, welche als schulfähig erklärt würden, wären sodann zur eigentlichen Einschreibung mittels eines schon vorgedruckten und nur kurz auszufüllenden Formulares, welches den Vermerk über die ärztliche Zulassung enthält, zu weisen. Bei den derzeit zur Einschreibung nicht zugelassenen Kindern wäre die Ursache, ungenügende Entwicklung bei Schulneulingen, Verdacht auf eine Infektionskrankheit oder sonst auf ein für die Schule wichtiges Leiden, Hysterie, Veitstanz, hochgradige Epilepsie etz., worüber ja die Angehörigen auch nähere Auskunft erteilen könnten, Ungeziefer und dergleichen mehr, gleichfalls in dieses Formulare einzusetzen und zugleich der Tag zu bestimmen, wann dieselben wieder zu kommen haben. Bei Kindern, welche mit Ungeziefer behaftet sind, wäre den Angehörigen eine gedruckte Belehrung zur Bekämpfung dieses Uebels mitzugeben. Körperlich unrein befundene Kinder wären vor Zulassung zur Einschreibung in die Schulbäder zu senden. Hiedurch gelänge es, die Eltern auf die Körperpflege in nachdrücklicher Weise aufmerksam zu machen.

Anderweitige und besondere Massnahmen gelegentlich der ersten ärztlichen Untersuchung bei den Schuleinschreibungen wären den speziellen Bedürfnissen anzupassen.

Ich bin mir bewusst, dass ich durch diese Neuaufstellung der Anwesenheit und werktätigen Mithilfe des Arztes bei den Schuleinschreibungen, eine Massregel verlange, welche radikal erscheint, jedoch durchaus nicht schwer durchzuführen ist. Die erste Untersuchung erscheint mir als die wichtigste, denn in allen Berufszweigen herrscht das Bestreben vor, ein geeignetes Menschenmateriale heranzuziehen. Bei der Volks-

schule muss dieses Prinzip umsomehr festgehalten werden, als eine gesetzliche Pflicht zum Besuche derselben besteht und die Eltern das Recht und die Gewähr haben müssen, dass ihre Kinder vor jeder Schädigung, welche aus dieser Pflicht sich ergeben könnte, tunlichst bewahrt werden.

Unter Voraussetzung einer dergestalt durchgeführten ersten Untersuchung, würde sich für die Folge Nachstehendes ergeben :

Die vorläufig zurückgewiesenen Kinder hätten sich etwa nach 14 Tagen in der Ordination des betreffenden Schularztes behufs Untersuchung ihrer Aufnahmsfähigkeit einzufinden, bei welcher Gelegenheit ihnen eventuell die Eignung zur Einschreibung bestätigt werden kann.

Auf die Art hätte man gleich zu Beginn der Schule schon in erzieherischer und prophylaktischer Weise gewirkt, man hätte durch die Messung der Körpergrösse wegen Verteilung der Sitzgelegenheit vorgearbeitet und würde ein, wenn auch flüchtiges Gesamtbild, über das zukünftige Schülermateriale gewonnen haben. Kinder mit ansteckenden oder eckelerregenden Krankheiten, mit hochgradiger Hysterie oder Epilepsie Behaftete sind vom allgemeinen Schulbesuche überhaupt fernzuhalten.

Nach dieser *ersten allgemeinen* Untersuchung hätte im Verlaufe der ersten Tage auch die Untersuchung der Augen und Ohren der Schulkinder einzusetzen. Dabei könnten dem Schularzte schon Winke seitens des Lehrers zu Gute kommen, welcher über diese Art Gebrechen beim Schulunterrichte Erfahrung sammelt. Die Untersuchung der Augen der Kinder soll sich nicht bloss auf die Sehschärfe beschränken. In allen Fällen, in denen diese von der Norm abweicht, wäre auch der Augenspiegelbefund zu erheben. Als der Spiegel der Seele wird das Auge schon im Volksmunde bezeichnet. Dem Fachmanne aber offenbaren sich krankhafte Veränderungen des Körpers, welche sonst lange Zeit verborgen bleiben, durch den Spiegelbefund ; ich erinnere hier ausser den lokalen Befunden, den verschiedenen Trübungen im Augeninnern, an die Erkrankungen der Nervenzentren, die Nierentzündungen etz.

Wie wichtig die Klarstellung der Augenbefunde erscheint, erhellt aus der Tatsache, dass mehr als ein Viertel aller Kinder der Volksschulen Brünn's an Augenfehlern leiden. Der Nachweis dürfte sich wohl auch anderwärts ergeben. Die näheren Daten für die Stadt Brünn mögen auf Grund der Untersuchungsergebnisse in den einzelnen Jahren aus der nachfolgenden Zusammenstellung entnommen werden.

Diese hohe Ziffer der Augenerkrankungen führt mich dazu, eine zweite Forderung aufzustellen, dass die Augenuntersuchungen einem, eventuell nach Bedarf mehreren, spezialistisch ausgebildeten Aerzten übertragen werden. Derselbe kann gegebenen Falls auch die Untersuchung der Ohren der Schulkinder übernehmen. Diese Massnahme hat sich in Brünn, wo dieselbe eingeführt erscheint, gut bewährt.

Mit den Augen- und Ohrenuntersuchungen wäre zunächst bei den Schulanfängern zu beginnen, weil die Feststellung derartiger Fehler für die Sitzordnung, für den Unterrichtserfolg oder für eine eventuell einzuleitende Behandlung von Belang ist. Die Untersuchung der Schüler höherer Klassen hätte, unter Annahme des spezialistischen Arztes, mit den anderen Untersuchungen parallel zu gehen und könnte die Daten früherer Jahre verwerten. Ich muss es mir im Rahmen dieses kurzen Vortrages versagen, die Wichtigkeit der Untersuchungen durch einen Spezialarzt näher zu begründen und will nur darauf hinweisen, dass die anderweitigen körperlichen Krankheiten und Gebrechen, nach den

	1902/1903.		1903/1904.		1904/1905.		1905/1906.	
	Knaben.	Mädchen	Knaben.	Mädchen	Knaben.	Mädchen	Knaben.	Mädchen
Zahl der Untersuchten	6311	6316	5602	5656	6006	6266	4013	4351
Darunter Augenkranke	1451 =22·9%	1779= 27·98%	1443 =25·7%	1728 =30·5%	1708 =28·4%	2040 =32·5%	1173 =29·0%	1576 =36·0%
Kurzsichtigkeit wirkliche	208 =3·3%	232 =3·67%	168 =3·0%	219 =3·6%	206 =3·4%	250 =3·9%	138 =3·4%	183 =4·2%
Kurzsichtigkeit scheinbare	139 =2·2%	195 =3·0%	231 =4·1%	345 =6·1%	314 =5·2%	390 =6·2%	226 =5·6%	327 =7·5%
Uebersichtigkeit	287 =4·5%	380 =6·0%	242 =4·3%	275 =4·8%	272 =4·5%	325 =5·1%	181 =4·5%	242 =5·5%
Hornhautverkrümmung	166 =2·6%	188 =2·9%	230 =4·1%	229 =4·1%	233 =3·8%	264 =4·2%	151 =3·7%	198 =4·5%
Hornhauttrübung	213 =3·4%	272 =4·3%	184 =3·2%	281 =4·9%	254 =4·2%	323 =5·1%	173 =4·3%	216 =4·9%
Entzündliche Prozesse	270 =4·3%	302 =4·9%	222 =3·9%	221 =3·9%	209 =3·4%	251 =4·0%	177 =4·4%	196 =4·5%
Entstellung durch Schielen	162 =2·6%	205 =3·2%	161 =2·9%	154 =2·7%	216 =3·6%	236 =3·7%	126 =3·1%	214 =4·8%
Linsentrübung	6	5	5	4	4	1	1	—

Erfahrungen in Brünn, kaum die Hälfte der Augenleiden ausmachen und dass, wie ja männiglich bekannt, die Augen der Schuljugend vom Beginne der ersten Angriffe der Civilisation, das ist des Unterrichtes an, stetigen Veränderungen, leider in absteigender Richtung, unterworfen sind.

Das bisher Vorgebrachte sollte eine Richtschnur für die Methode der ersten Untersuchungen abgeben.

Für die folgenden Untersuchungen möge man nicht in sklavischer Abhängigkeit an Vorschriften und Formeln fixe Termine ansetzen, die zudem vielleicht nicht eingehalten werden können. Der Posten eines Schularztes ist und bleibt eine Vertrauensstellung und jede Verwaltung muss wissen, wen sie hiemit betraut. Zweifellos wird es sich empfehlen, allmonatlich Sprechstunden in den einzelnen Schulen abzuhalten, zu denen alle jene Kinder zur Untersuchung zu erscheinen haben, bei welchen auf Grund der ersten Untersuchungen Krankheiten oder Gebrechen, Herzfehler, Bruchanlage, Lungenspitzenkatarrh etz. vorgefunden wurden, die einer dauernden Beaufsichtigung bedürfen. Man sehe jedoch von den so vielfach vorgeschriebenen Messungen des Brustum-

fanges, welche absolut keinen praktischen Wert haben, ab. Handelt es sich um *Verdacht* auf eine, oder gar um eine ausgesprochene Lungenerkrankung, dann wird dieselbe und ihr Fortschreiten nicht durch Messungen des Brustumfanges nachgewiesen oder kontrolliert werden. Hiefür gelten die allgemeinen üblichen wissenschaftlichen Methoden. Zu den monatlichen Untersuchungen wären weiters alle jene Schüler zu bestimmen, bei denen die Lehrpersonen auf Grund der Erfahrungen im Unterrichte Abweichungen vom Normalen wahrgenommen haben. Mangelhafte geistige Auffassung seitens des Kindes wird zunächst zu *anamnestischen* Erhebungen bei den Eltern Veranlassung geben. Vererbung, Entwickelung, überstandene Krankheiten werden im Zusammenhange mit den Untersuchungsbefunden, Rachitis, Hydrocephalus, vergrösserte Tonsillen, Rachenvegetationen, Nervenstörungen, Ohrenkrankheiten, mangelhafte Blutbeschaffenheit infolge ungenügender Ernährung, Eingeweidewürmer, oder sonstige Erkrankungen, dazu führen, derartige Kinder nur einer sozialen Massregel durch bessere Ernährung—unentgeltliche Bespeisung—einer entsprechenden Behandlung oder aber des Unterrichtes in Kursen für mit Sprachfehler Behaftete, in Hilfsklassen und Anstalten für Schwachsinnige teilhaftig werden zu lassen. Atemnot, Herzbeschwerden wird auf Veränderungen in den Atmungs- und Kreislaufsapparaten deuten und damit zur Befreiung von gewissen Unterrichtsgegenständen führen.

Neben diesen allmonatlich stattfindenden Untersuchungen wird sich auch die Notwendigkeit einer ausserordentlichen, raschen Nachschau ergeben, so bei Auftreten von Infektionskrankheiten in einer Schulklasse. Die Erfahrung lehrt, dass bei diesen Leiden hauptsächlich die um den Kranken herumsitzenden am meisten gefährdet sind. Masern, Scharlach, Diphtherie, Keuchhusten werden von Kind zu Kind übertragen, zu einer Zeit, wo von einem Exanthem oder Krankheitserscheinungen noch keine auffällig sichtbaren Zeichen vorhanden sind. Bei jedem Auftreten einer solchen Erkrankung in der Schule, von welcher bei bestehender Anzeigepflicht die Schulleitungen seitens der Sanitätsbehörde sogleich zu verständigen sind, hätte der Schularzt die notwendige Nachschau sofort zu üben.

Katarrhalische Erscheinungen der Atmungsorgane oder die sogenannten Koplick'schen Flecke könnten bei Masern, Brechreiz, entzündliche Rötung der Halsorgane bei Scharlach und Diphtherie zur nötigen frühzeitigen Absonderung der Schulkinder führen.

In den Sommermonaten wäre auch dann noch bezüglich der Entsendung der bedürftigen, schwächlichen, mit Blutarmut, etz., behafteten Kinder in Ferienkolonien oder Waldschulen, und von an Scrophulose oder cariösen Prozessen Leidenden in Seehospize, die geeignete Auswahl zu treffen.

Zwei Kapitel bedürfen einer besonderen Besprechung, die tuberkulösen Erkrankungen der Luftwege und die Caries der Zähne. Bei der *Tuberkulose* halte ich den *Nachweis der Tuberkelbazillen* im Auswurfe für die Sicherstellung der Diagnose und auch für den Nachweis der Infektiosität geboten. Die Untersuchung auf Tuberkelbazillen ist zudem nicht schwer und von jedem Arzte leicht ausführbar. Wo klinische Institute bestehen, könnten auch diese um derartige Untersuchungen ersucht werden. Kinder mit nachgewiesenen Tuberkelbazillen im Auswurfe müssten unbedingt vom Schulbesuche ausgeschlossen werden.

Die Zahncaries mit ihrer immensen Ausbreitung erfordert meiner Ansicht nach gleichfalls eine spezialärztliche Ueberwachung und, da mit einer solchen allein nicht gedient ist, auch der Behandlung von Schulkindern unbemittelter Eltern. Doch kann eine Behandlung durch Privatärzte nach den auch in Brünn gewonnenen Erfahrungen, als zu umständlich und kostspielig, nicht befürwortet werden. Hiefür wären eigene zahnärztliche Ambulatorien einzurichten, wie dies in einigen Städten bereits besteht. Das Prinzip, wonach die Behandlung von Schulkindern nicht Sache des Schularztes sei, wird damit durchbrochen, jedoch mit Recht; denn um praktisch für die Volksgesundheit zu wirken, ist es nicht allein notwendig Krankheiten nachzuweisen, sondern auch zu heilen. Ich stehe nicht an zu erklären, dass die Städte, in welchen Aerzte mit der Behandlung unbemittelter Kranker betraut sind, welchen gleichzeitig auch die Ueberwachung in der Schule und die Behandlung armer Schulkinder zugewiesen ist, die praktische Seite der Schularzteinrichtung in einheitlicher Weise gelöst haben.

Ich möchte mir erlauben diesbezüglich auf meine Vaterstadt Brünn hinzuweisen, welche bei 120,000 Bewohnern rund 15,000 Volksschulkinder aufweist. Die Stadt ist in 10 Sanitätsbezirke eingeteilt. Für jeden Sanitätsbezirk ist *ein* Arzt mit abgelegtem Physikatsexamen definitiv bestellt, dem die Handhabung der Sanitätspolizei, die Armenbehandlung und die schulärztlichen Agenden in seinem Bezirke, somit auch die Behandlung armer Schulkinder übertragen ist. Der Arzt kennt durch den ständigen Aufenthalt in seinem Bezirke nicht nur die allgemeinen sanitären, sondern auch die Familienverhältnisse der unbemittelten Bevölkerungsklassen, kann somit direkt belehrend und werktätig namentlich auch bei Infektionskrankheiten eingreifen. Für die Augen- und Ohrenuntersuchungen, wie auch zur Behandlung dieser Leiden, ist ein eigener Spezialarzt, gleichfalls mit abgelegtem Pysikatsexamen bestellt. Diese Aerzte unterstehen direkt der sanitären Zentralstelle dem Stadtphysikate, das 2 Stadtphysici zur Leitung hat. Für die Zahnbehandlung, welche bis nun durch Zuweisung an private Zahnärzte stattfand, wird ein städtisches zahnärztliches Ambulatorium geplant.

Ueber alle Befunde gelegentlich der schulärztlichen Untersuchungen werden die Eltern, was unter allen Umständen geboten erscheint verständigt, arme Schulkinder aber auch gleichzeitig unentgeltlich behandelt. Dieselben erhalten Medikamente, Verbandmaterialien, Brillen etz. auf Kosten der Stadt, werden über Antrag der Schulärzte in orthopädische Anstalten, in Ferienheime oder Seehospize etz. gleichfalls auf Kosten der Stadt entsendet, und auf diese Weise wird ohne ängstlichen Formalismus Praxis in die Methode gebracht, was weiter ausgebaut zu werden verdient.

SECTION II.

MEDICAL AND HYGIENIC INSPECTION IN SCHOOLS.
INSPECTION MÉDICALE ET HYGIÉNIQUE DES ÉCOLES.
AERZTLICHE UND HYGIENISCHE SCHULAUFSICHT.

President:
PROFESSOR WM. OSLER, LL.D., F.R.C.P., M.D., D.Sc., F.R.S.

Secretaries:
R. H. CROWLEY, M.D., M.R.C.P. | A. H. HOGARTH, M.B., D.P.H.

MEDICAL AND HYGIENIC INSPECTION IN SCHOOLS.

Introductory Remarks by WILLIAM OSLER, M.D., F.R.S.,
Regius Professor of Medicine, Oxford.

I AM sure you will all agree that the Section relating to the medical and hygienic inspection of schools yields to no other in importance. The subject may be considered from two aspects, first, medical inspection is the only means whereby we can take stock of the physical and mental condition of the children; and, secondly, it leads us to consider what practical means we shall adopt for dealing with conditions of ill-health which hinder normal development. The long list of papers indicates the variety and importance of the discussions, but they all come under one or other of these two divisions.

School anthropometry is of such interest, and has such a practical bearing upon the question of national efficiency, that one wonders how it can have been neglected for so long. If we could only get the people at large to take as much care in the breeding and training of children as the stock growers of this country do in the various strains of horses, cattle, sheep, and dogs, we should long since have had rows of volumes containing statistics of infinitely greater value than the stud books and herd books which are the pride of the country. It should not be difficult to carry out over a period of years systematic measurements of the children which would form a basis for comparison in the future. Doubtless before this century closes, every nation will take a decennial census of its children, with a view to determine the direction of its physical evolution. We have no standards to-day for comparison; who is able to say whether the children of 1907 are smaller or larger than those of 1857?

But the major portion of our work relates to medical inspection, and we shall have the subject presented to us from a great many different standpoints. We shall have the benefit of hearing from colleagues of the plans adopted in other countries, and there are papers upon almost every one of the commoner physical defects. Then we shall hear of the mutual relations of the doctor, the nurse, and the teacher, the relation of the family to the school, and the all-important relation of the State to the family, so far as the children are concerned.

It cannot be said that since the Nuremberg Congress progress has been

made in this country in proportion to the great importance of the subject, and yet in individual cases much has been done, particularly in the way of stimulating interest among the members of local education committees. We have suffered from a somewhat haphazard, irregular plan of action, without co-ordination or central control, and the few counties and localities which have made a beginning have devised each its own scheme of organisation. It is sad to have to acknowledge that, so far as systematised methods of inspection are concerned, this country is far behind Austria, Sweden, the Argentine Republic, Hungary, Norway, Switzerland, Servia, France, Japan, Roumania, and Russia, in all of which medical inspection is in force by legal enactments, which have come into operation in the several countries in the order I have named between 1873 and 1899. In Germany, where a great deal of the best work has been done, and in the United States, it is still chiefly a matter of local organisation in the different States; but in 1900 the Prussian Government issued orders requiring the medical inspection of all educational institutions. Sweden and Switzerland have been foremost in this work, and in the latter country school clinics have been established for the treatment of physical defects. The new Code for secondary schools, issued in 1905, for Sweden, affords an excellent basis upon which every country could model an adequate scheme of inspection. In France, Belgium, and Holland there have been many workers, and though no uniform system has been adopted, yet great progress has been made in the field of pedagogy and in the co-operation of teacher, doctor, and parent in the education of the children. In the United States the subject has been dealt with by many of the local governments with great energy and efficiency, and we shall hear from several of our colleagues of the methods followed in that country and in Canada. While this country is still very behindhand, there are a few individuals who have kept abreast of the times and have done good work. Two important difficulties, I believe, in this country are the absence of statutory powers to legalise medical inspection, and the lack of direction from a central authority. After all, it is not surprising that the subject has been neglected by successive Governments, which have found Education Bills the most difficult of all to manipulate. But this is not a Cowper-Temple or a Church catechism business, since all are agreed upon the primary necessity of good health. I do not doubt that, before long, a comprehensive scheme will be introduced which will give a thoroughly efficient organisation for medical inspection, and it is gratifying to have heard from Lord Crewe, at the official opening of the Congress, that such a Bill has been presented to Parliament, and is soon to become law. It would be impossible to over-estimate the advantages of a medical department at the Board of Education, which would not only direct the teaching of hygiene and physical training, but which would control medical inspection from the smallest elementary school to Eton. In this way only can municipal activity and individual effort be harmonised and co-ordinated.

We must acknowledge that the whole question is one which bristles with sociological and economic difficulties. Take a few concrete instances. In the admirable report just issued by Dr. Crowley, of Bradford, one of our secretaries, I have found it stated that 13 per cent. of the children are of poor or very poor nutrition. Is the doctor to

order school meals for this 13 per cent. ? or shall we ask the policeman to make domiciliary visits, and request the parents to spend less on drink and more on food for the family ? or, if need be, shall we go to the Mayor of the town, and ask that the wage earner be given work, so that he may buy sufficient food for the children ? More than 25 per cent. of the children reported upon by Dr. Crowley are dirty, or very dirty, and the astonishing percentage, nearly one-half, showed the presence of the well-known fauna on their heads. What are the school authorities to do—scour and scrub, and provide tubs and combs and barbers ? All this becomes a very serious problem, particularly if it come to a question of clothing as well. The difficulties that arise in dealing with the subject are numerous. There is, perhaps, no single organ so persistently, universally, scandalously and disgustingly neglected by English people at large, high and low, rich and poor, as the tooth. It is a national disgrace that a neglect of these all-important structures should be so general. It is not surprising to find that of school children, from 50 to 60 per cent., sometimes nearly as high as 70 per cent., show decayed teeth ; I should say that this estimate by Dr. Crowley is below the mark. What are we to do ? In the little school of Ewelme, in Oxfordshire, in which I am officially interested, it would take a good dentist many weeks to put the teeth of the 120 children in good order. There is not a dentist within three miles of the place. In this connection, I must refer to the great work of Professor Jessen, who has organised a dental clinic in Strassburg as an example to the whole world of what can be done to preserve the teeth of the children, and I am glad to see Professor Jessen will read a paper before this Section. The condition of the throat and nose is of equal, perhaps even of greater, importance. Kit Catlin, the well-known writer on the North American Indians, published a stirring pamphlet many years ago with the title, " Shut your Mouth and Save your Life," showing how all of the native tribes of North America were nose-breathers, and he attributed most of the ills of civilisation to mouth-breathing. I think it is safe to say, that there are more mouth-breathers in England to the acre than in any country in the world. In the case of so many persons, if not when they are quiet, at any rate on the slightest exertion, the mouth is open, and often with it a most unlovely expression of the face. Dr. Crowley estimates that 28 per cent. of the Bradford school children were mouth-breathers. The resulting nasal catarrh and enlargement of the tonsils and of the lymphoid structures of the throat, have a most injurious effect on the growth of children, and on the formation of the mouth and of the chest ; and what is more serious a mouth-breather has rarely such mental snap or energy. One can read the mind's complexion in his dull, heavy, expressionless face. What are we to do ? The condition is by no means easy to treat, requiring skill and sometimes a serious operation. The same problems confront us with regard to the defects of the eyes and of the ears just as important as the problems relating to infectious diseases.

There are great difficulties in the way of the establishment of the school clinic which seems a necessity, and for which so many plead, particularly in the very districts in which it is most needed. Are we to look forward in each district to travelling specialists, before whom the children will be lined up—Monday the eyes, Tuesday the ears,

Wednesday the teeth, and so on ? Much may be done to prevent these defects and diseases, more particularly the nasal catarrh, the adenoids, and the deafness. The temperature of many of the schools is too low in the winter. In others the ventilation combines a maximum of draught with a minimum of heat. And most important of all, the damp condition of the houses in which so many of the poor people live favours the chronic nasal, pharangeal catarrh. The discussion of these and other problems will at any rate stir up the interest of education authorities and of the medical profession, and even if many of the suggestions savour of socialism I do not think this is to be dreaded when placed in the balance against the health of the nation.

The ideal conditions are easily defined. First, a central department at the Board of Education, which would supervise and co-ordinate work throughout the country ; secondly, at each school, an intelligent woman, preferably one who has had experience as a nurse, whose duties would be to carry out anthropometric observation at stated intervals, to assist the doctor in all matters relating to the hygiene of the school, and the personal hygiene of the children ; thirdly, a school dentist, who would make an inspection quarterly of the mouths of the children and put the teeth in order; and lastly the school doctor. Who shall he be ? What sort of a man shall he be ? and where shall he work ? These are difficult questions. Who shall he be ? An assistant of the medical officer of health ? The local practitioner of the neighbourhood, or a special school doctor ? Time and circumstances must settle these points. What sort of man should he be ? One specially trained in the general principles and practice of anthropometry, so that he could direct and control this work. He should have had special training in the management of morbid conditions of the nose and throat, and of the ear and the eye in children. Six months or a year would give a young man the necessary knowledge of this work. The medical schools would gladly organise special courses in the subjects, and certificates should be demanded. Where shall he work ? A school clinic is only possible in large places, and many children require operations which, though called minor, are often awful tragedies to the little ones, and all such work must be done beyond the ears of the other children. It would be intolerable to have the brawling racket of a children's out-patient department within the precincts of a school. In a majority of country places the school clinic would have to be connected with the village dispensary. To the life of the schoolmaster and the parson, the doctor and the nurse will add zest, if not enjoyment; but at all costs the doctor must control the situation, which is one full of opportunities for endless disputes and worries, unless the master is in thorough sympathy with medical inspection. There will be difficulty with the parents, particularly in getting proper treatment carried out, and the school doctor must work in harmony with the local physicians, on whose preserves he must often poach, but who must at all hazards be made a coadjutor and friend.

One word in conclusion—if we are to have school inspection, let us have good men to do the work, and let us pay them well. It will demand a special training and a careful technique. It cannot be properly done by second-class men, and the work is of sufficient importance to warrant the payment of good salaries.

THE CO-OPERATION OF DOCTOR, TEACHER AND NURSE IN MEDICAL INSPECTION.

By JOHN A. HAYWARD, M.D., F.R.C.S.,
Medical Officer to the Wimbledon Education Authority.

THE premises on which I base the following remarks is that any system of medical inspection in elementary schools, in order to be efficient, must depend on the active co-operation of the head teacher, the class teachers, the doctor, and, last but not least, a well-trained school nurse.

In Great Britain we have not yet arrived at anything like a complete or ideal system of inspection; the duties of the doctor vary greatly in different districts, and in no case do they reach that degree of thoroughness which obtains, for instance, in the Wiesbaden system in Germany. Here in England we have not decided how far we are to go in medical inspection, and, in the absence of uniformity of method, it is not easy to assign the respective rôles which should be performed by either doctor, teacher or nurse; in each district these must depend on the degree of thoroughness aimed at by the education authority. The following suggestions may, I hope, initiate a discussion which will be helpful in formulating ideas on this subject, and will pave the way for a uniform and efficient system of inspection.

To turn now to some of the details in which co-operation of doctor, teacher and nurse is necessary. We have the part to be taken by each in—

1. The preparation for and the actual inspection of the children at school.
2. Dealing with infectious complaints.
3. Securing cleanliness and absence of verminous conditions.
4. The detection and separation of special classes of children in regard to their mental and physical capabilities.
5. The investigation of home conditions.
6. The examination of the sight.
7. The examination of children on entry, and the keeping of future records.
8. Anthropometric measurements.
9. The hygienic state of the school and its equipment.
10. The establishment of continuation classes in school hygiene, which will afford opportunities for doctor, teacher and nurses to meet together to discuss their special work.

Now it is quite certain that in all these details the doctor cannot carry out the work unaided. An intelligent appreciation of his aims must be shown by the teachers and nurse. The selection of cases to be presented at an inspection, the keeping of records and notes, preliminary testing of sight, height and weight measurements, and a great deal of the clerical work can well be done by the teacher or nurse. They must know

beforehand what is the doctor's plan of campaign, and the preliminaries must be so arranged beforehand that his time is not wasted. Economy of time is all important at an inspection; and hopeless confusion results in a class-room, and the essentials are never arrived at, unless all is ready beforehand, and the object of the inspection effected by an orderly and definite plan of action.

Dealing with an ordinary inspection, it is a great advantage, when nurses are employed, that a nurse should accompany the doctor at an inspection, for the following reasons :—

1. The smaller children are more amenable by her presence and help.

2. She can write notes and save time by filling in notifications to parents.

3. Instructions to her can be given personally; she can afford information on special points, such as conditions of the home, and she can act as a direct means of communication between the doctor and the parents.

4. The nurse is a great help in the examination of the girls, and especially in matters of cleanliness.

5. The working together of doctor and nurse makes for efficiency.

Then as to teachers at an inspection. The doctor should invariably, before an inspection, interview the head teacher, and arrange his work as best suits the convenience of the school; he should receive a general report as to the health of the scholars and the hygienic arrangements, and discuss any points of difficulty or doubt. This is a little courtesy which is generally appreciated.

It is advantageous in some respects that the head teacher should accompany the doctor on his round of inspection; but generally I prefer that the class teacher should, in the absence of the head teacher, feel that he or she is responsible for the class. This sense of responsibility is to be encouraged, and is best encouraged by personal relation with the doctor. It is not going too far to say that the efficiency of an inspection and the results obtained are almost entirely dependent on the attitude of the class teachers and the share of zeal with which they enter into the work. I have found that the keeping of a medical class-book in each room has been of the greatest aid in an inspection. The teacher, who should know beforehand the class of cases for which she is always to be on the look-out, has already entered in this book the cases to be brought forward, and any points on the class-room hygiene, appliances, etc. The book is ready, open for inspection, and the work begins at once. The teacher keeps the class in order, the nurse does the writing of the notifications to parents, and any notes, and the doctor devotes himself to the examinations of the children and the giving of instructions to teacher and nurse.

After going through the cases entered in the book, an inspection of the class as a whole is made and any further cases called out and examined. Old cases are also looked up. The cleanliness of the class and the care of the teeth are reported by the teacher, and where interest in these matters is taken by the teacher, it is surprising how soon the children themselves aim at a high standard.

If time permits, the class is put through a physical and breathing exercise, and here again the interest of the doctor has a good effect.

It is obvious that considerable thought and preparation should be

exercised by the teacher before an inspection. The work involved is no little addition to the prescribed duties of teaching, and, in my opinion, it is entirely necessary that this personal interest and pride in the physical welfare of children should be initiated at the training colleges for teachers, by including in the curriculum as a compulsory subject a knowledge of school hygiene, and of those complaints of childhood which affect educational capacity. This applies with double force to men teachers, who have not the same instinct for this kind of work as women, and who, without previous training, are frequently not a little bored and puzzled by this addition to their duties. I would emphasise again the gain in interest and the useful purpose served by keeping a medical class-book in which cases are entered by the class teacher, and notes can be written by doctor, nurse and teacher.

The part to be taken by doctor, teacher and nurse in dealing with infectious diseases is a matter of no little difficulty, and is eminently a subject for discussion. In the case of an epidemic it is certain that considerable responsibility must fall upon the teachers, unless a daily visit to the school is to be paid by the doctor—a course which, in most places, is hardly practicable, and in any case of doubtful value. The teacher has the class under constant observation, and, in my opinion, it is quite possible that any teacher can, with a little training, become acquainted with the prodromal symptoms of the ordinary infectious complaints and take the necessary steps for excluding any suspicious case. A register should be kept in each class of the infectious diseases from which children have suffered, and this may be of great use if any question of closing the school arises.

During an epidemic a routine inspection of the class should be made daily by the teacher. A clinical thermometer should also be kept in each classroom. Any case excluded by the teacher should be notified to the parent, and to the education authority on a special form. Under special circumstances it may be necessary for the doctor to attend for the purpose of a general inspection before deciding on closure of the class or school, or for taking material for bacteriological examination, but, except under special circumstances, the teachers must be relied upon to do what is necessary in the way of exclusion, prevention of overcrowding at the desks, ventilation, etc.

The nurse should attend daily at a school during an epidemic to help the teachers in the inspection, and, if necessary, she should report any matters of importance to the doctor.

What is really of importance is that there should be some definite organisation for dealing with these complaints, in which doctor, teacher and nurse should take their parts.

For securing a good standard of cleanliness in the school the active co-operation of doctor, teacher and nurse is most necessary. The aid of a nurse here is almost a necessity, and I would invite special discussion on this point. In Wimbledon we have adopted the plan of inspecting every child at least once each term, and unsatisfactory cases every week or fortnight. A special method is adopted by the nurse. Any verminous child is at once excluded, and a notice sent to the parents, with a card of instruction for treatment. The nurse follows this up by a visit to the house. At the end of a week the child is inspected by the nurse at the school, and if still unsatisfactory, is sent home for another week of treat-

ment. If, at the end of the second week, the child is still unfit to attend, the education authority is notified and the parent required to afford an explanation. Further action is taken, if necessary, by the authority by prosecuting the parent or referring the case to the S.P.C.C. In bad cases the sanitary department disinfects the house. The work of the doctor consists in advice in special cases, and expecting a high standard of cleanliness at the inspections. The attitude of the teacher and the zeal of the nurse are the real factors in securing results. When they are keen the children are clean, and a high tone in this respect results in the classroom. A most noticeable difference in the cleanliness of the children and in the diminution of verminous cases has resulted by the adoption of this method. A point on which I would like to hear opinions expressed is whether it is advisable to seat children who are not satisfactory at separate desks; this method, I think, ought to be adopted in children over ten or eleven years of age.

In no direction should medical inspection of children at school prove more useful than in the discrimination of the various types of mental and physical capacity, and the advising of special lines of education, which may best be carried out in particular instances.

In the absence of some system of discrimination the bright and intelligent are hampered by their less fortunate fellows; the mentally defective, or dull, or backward types, are often worked in wrong directions; the nervous types are overpressed, and their condition exaggerated. To my mind this is the most difficult part of medical inspection, and far greater experience is required by both teachers and doctors. Co-operation here is most essential, and some special training is necessary both for doctor and teacher. The teacher should be able, as it were, to sift her class, to discriminate broadly between the mentally defective, the dull, and the merely backward. She must be acquainted with the signs of overstrain, mental and physical. It is necessary that she should have some knowledge of the development of the nervous system and of the analysis of mental capacity, and the tests by which it may be elicited, and of the physical conditions during childhood which affect mental capacity. The school doctor should be an expert in these respects; it is his specialty; but the facts on some scientific basis must be presented to him by the teacher, who has daily opportunities for observation under less abnormal conditions than an inspection. The facts presented clearly by the teacher, and his own examination, will enable him to advise as to the course to be pursued in particular cases. This is such an important part of medical inspection that, in my opinion, special visits to each school should be arranged, when this part of the work can be dealt with exclusively. The school nurse can aid by paying home visits and gaining information from parents, and noting the home conditions, and gaining information on special points required by the doctor.

How far it is advisable for the doctor to prescribe special training to meet the various types, and how far it is possible under present conditions at the school, I must leave to the subsequent discussion.

The weak point in medical inspection lies in the fact that it brings to light conditions over which we can have very little control. We cannot alter the home environment, or compel attention to any directions given. It is possible, however, to influence and instruct at the homes, and this can be best effected by the aid of a well-trained nurse. I look upon the

services of a nurse as one of the most essential factors in any system of medical inspection.

The work of the nurse lies in two directions—at the school, and visiting the homes.

At the school. I have alluded to the great help she can afford to the doctor at an inspection. Apart from this I consider that the nurse should visit each class-room at least once a week to help the teachers by advice, make notes in the medical class-book, and arrange for any visits that may be necessary at the homes, inspect as regards cleanliness and the necessity for exclusion. Once a week she should report personally to the doctor, and thereby keep him in touch with the school between the intervals of the inspections. The question whether the nurse should actually carry out any treatment at the school is eminently one for discussion In my opinion, this should be exceptional rather than the rule; but a small dressing outfit may well form part of her equipment for the treatment of cuts, sores, etc., such slight treatment is a useful object-lesson for the children. The school visits of the nurse are greatly appreciated by the teachers, and the influence exerted in keeping up a high standard of cleanliness is very marked.

At the homes. The services of a nurse are of the greatest value.

1. A personal interview with the parents has far more effect than any number of official notices when treatment is required. A tactful nurse will generally gain her object in the long run; the majority of parents do not know how to set about treatment, and the nurse makes all this plain.

2. Again the nurse can instruct parents as to the carrying out of a number of little details in minor ailments, verminous conditions, and her work thus becomes an important educational factor.

3. She also gains an insight into the home conditions, and can acquire much useful information in particular cases as regards the history of a child; her work also establishes a personal relation between the doctor, the teacher and the parent.

Any actual treatment at the home should not, in my opinion, be carried out by the nurse; at any rate, it should be the exception, not the rule; it is easy to see how it might diminish parental responsibility and encourage reliance on outside aid.

6. We have much to learn from continental and other sources as to the methods adopted in the examination of children on entering school and the keeping of subsequent records during the school career. The co-operation of teacher, doctor and nurse is here again essential. At these examinations the nurse should be present to help the doctor, and the clerical work can well be done by the teacher, who would also receive advice as regards any special course to be pursued in delicate or peculiar children. The keeping of records in a special book should be the joint work of teacher and doctor, and cannot fail to develop an interest in the physical and mental development of the children under her care.

Height and weight measurements should be kept in this record, and this part of the work can also be performed by the teacher.

7. I need hardly mention how entirely the hygienic condition of the school and its equipment depends on the intelligent interest displayed by the teachers, and especially the head teacher. The doctor may inspect and report, but it is useless unless he can secure their co-

operation in carrying out details. Here again reports by the teachers in the medical class-books are most useful. This subject will, I hope, come under discussion; but I think all will agree that a training in school hygiene should be one of the most important qualifications in a teacher's certificate.

How can this happy co-operation of doctor, teacher and nurse be best effected ?

First and foremost they must realise the supreme importance of the work in which their co-operation is needed. All the energy, all the interest has hitherto been expended on the mental output, without taking into consideration the physical forces at work. The output of the machine has alone been considered and not its mechanism. In future the three R's must go hand in hand with the three H's—Health, Hygiene, Happiness. The performance of this work must no longer be looked upon by the teacher as a wearisome addition to an already overburdened curriculum; it must form a definite and real part of the duties of education; it must be considered as important as the purely mental work. To ensure this it is absolutely necessary that elementary physiology, hygiene, and some knowledge of the diseases of childhood which affect educational capacity should form part of the training of teachers. It is no less necessary that doctors should undergo training for this work, for a very special work and branch of medical science it is. The analysis of etiological factors, the estimation of the mental capabilities of a child in relation to its physical development, and a knowledge of the diseases which affect educational capacity, are subjects of difficulty, and require a special training and grasp.

One other and final point which I believe would do much towards securing that co-operation and right understanding so necessary in this class of work. Wherever a system of medical inspection prevails, classes in continuation of the special instruction given in the training-schools for teachers should be held by the doctor for the teachers who are working with him, *e.g.* classes in school hygiene, epidemic diseases, sight-testing, the special complaints which affect educational capacity, elementary physiology and development.

The doctor and teachers would thus be brought together and gain a common interest in the work in which they are engaged. The classes need not be entirely didactic. The doctor has a great deal to learn from the teachers, and, after a short lecture, discussion should be invited. It is by intercourse such as this, by the arousing of interest, by the mutual understanding of the importance and significance of the work in which all are engaged, that co-operation can best be ensured in the carrying out of the practical details in the daily work, and the periodical inspections in the classroom.

THE CO-OPERATION OF TEACHER AND DOCTOR IN SCHOOL.

By T. P. Sykes, M.A., Bradford,
Ex-President of the National Union of Teachers.

Teachers in elementary schools want the help of the doctor. In Bradford he is necessary owing to the refusal of the certifying factory surgeons to help to abolish the iniquitous system of half-time child labour in the factories. From this surgeon's decision as to the fitness of any child there is no appeal. Out of 4000 children who have passed as half-times from my school in the last twenty years, not one has ever been rejected; even those who cannot see the writing on the blackboard three feet away are admitted to work amongst dangerous machinery, and those not fitted to play in the playground are allowed to work in the factory. With regard to the general question, the doctor should be a reasonable man, with power to do things and order things to be done. He should remember that the school is not so much a place for enabling the maximum number of children to write and spell, but rather a centre of civilising and refining influences, and we want his help in getting an eye upon the individual child as to physical, mental, and moral development. The doctor will be expensive, not so much in the matter of salary as owing to the reforms which he will insist upon, if he has the power. But there are no reforms in the elementary school which will not cost money—and this one least of all. No amount of juggling with the Education Code, no number of finely-written prefatory memoranda will avail us one jot. The teacher has reached the end of his tether under the present conditions. In Bradford, so far, the doctor has been powerless to do more than touch the very fringe of the question. Much time and trouble has been spent upon mentally-defective children; but if one-tenth of the attention lavished upon them had been bestowed upon the sane and healthy, the community would have profited. Hitherto the doctors' hands have been tied; but they know infinitely better than they have been allowed to do.

THE WORK OF THE SCHOOL NURSE UNDER THE MEDICAL OFFICER OF HEALTH.

By Dr. Duncan Forbes, M.O.H., Cambridge.

The officials who carry out the scheme are the education medical officer (who is also medical officer of health), the school nurse, the attendance officers, and the head teachers. The clerical work is carried out by the staff of the Public Health Department. The nurse was appointed in October, 1906, at a salary of £95 per annum. One fully-trained, with successful experience of district work, should be preferred. The attendance officers, teachers and nurse all notify the names of children who

do not attend school regularly. The teachers are provided with printed instructions as to symptoms, etc. and supply lists of cases of known or suspected infectious diseases, and also of skin and acute eye diseases, and the nurse verifies the diagnosis. The medical officer of health takes action on her reports, and when there is doubt, visits cases himself. The nurse visits cases weekly, and in some ringworm cases applies ointments as treatment. Before issuing a return certificate the nurse visits the child, and, if necessary, takes material for examination at the Public Health Office. In certain schools the children with ringworm are allowed to return to school under conditions for the carrying out of which the nurse is held responsible. She also tests vision, colour vision, hearing, during the medical inspection of schools, thereby economising the time of the medical officer of health enormously. The details of the scheme are fully given in the Annual Report of the Medical Officer of Health for Cambridge for the year 1907.

Dr. W. Oldright (Toronto) inquired whether the school nurse devoted her whole time to the work. In reference to the subject of half-time factory children, the province of Ontario had been dealing with the matter, and the speaker would be glad to produce the most recent report. As regards the amount of cubic air-space, the number of changes of air per hour was obviously no less important. The Ontario Board of Health had recommended as a minimum 500 cubic feet of space, with five changes of air per hour. Artificial ventilation had recently been introduced into some schools with excellent results. Neglect in these two particulars was responsible for the high death-rate from tuberculosis, as compared with other causes, amongst teachers, and this fact pointed to equally injurious effects upon the children.

Dr. Cuntz (Wiesbaden): Ich beglückwünsche meine englischen Collegen dass sie in der Lage sind die Hilfe einer gut geschulten englischen Nurse in ihrer schulärztlichen Tätigkeit verwenden zu können. Ich fürchte dass dies in Deutschland Widerspruch finden wird, obgleich dies für die Ausführung der ärztlichen Ratschläge in der Familie von grossem Werth ist. Wir sind zufrieden dass einstweilen der Arzt Eintritt zu der Schule hat; noch eine weitere Controlle durch eine Pflegerin dürfte der Schule noch mehr Störung verursachen.

Ich muss mich auch dagegen ausprechen, dass die Lehrer Temperatur messen und Symptome der Krankheiten selbst beobachten sollen. Da besteht die Gefahr dass die Lehrer zu Kurpfuscher werden, und dem Schularzte unnötige Arbeit verursachen.

Dr. O. Duthie (Director of Education, Salford) stated that medical inspection of schools had been provided in Salford for the past eight years, and experience showed that the teachers were most willing to co-operate with the medical officer. It must, however, be borne in mind that their numerous duties and the number of subjects contained in the curriculum limited the time which they could devote to this branch of work. The Salford Education Committee had recently drawn up a syllabus of instruction in hygiene, ranging from Standard I. upwards, and a course of lectures, attended by 240 teachers, had been given by the medical officer, and would have to be repeated for the benefit of others hitherto unable to attend. Arrangements had been made for bringing cases under the notice of the medical officer, and for their systematic examination by him, and a satisfactory scheme had been devised for providing school children with spectacles at a low rate. In reference to the omission from the elementary school code of requirements as to minimum floor and air space, this had been done, not with the intention of levelling down, but rather of levelling up. In the Salford district H.M. inspectors had been requested to obtain particulars of the dimensions of all the schools, with a view to the Board's comparing the accommodation, calculated according to those dimensions, with the accommodation as now officially recognised.

Mr. E. J. Domville, M.R.C.S. (Exeter), emphasised the importance of sympathetic co-operation between doctor inspecting schools and the teachers. But behind everything stalked the phantom of the ratepayer. In order to secure any necessary reforms this phantom must be convinced, not only of their importance, but even of their monetary value. For, after all, the professional politician held the key of the position, and his action depended upon his constituents, parliamentary or municipal. In this connection Mr. Syke's paper was most valuable, showing, as it did, the scandalous waste of valuable material caused by the method in which the half-timer was allowed to earn a pittance in the factory districts, and to pretend at the same time to be in attendance at school. To secure freedom of action the inspecting medical officer should hold his appointment subject to the control of a central board, otherwise there was always the danger of the local secretary shelving the medical report. The school doctor should not treat cases medically. Districts should be equalised, and small schools grouped together, if necessary, to secure uniformity.

Mrs. Kirk (Headmistress, Belle Vue Infants' School, Bradford) remarked that the teacher could assist the doctor very materially in the practice of hygiene in school if she had authority to send home children who came in a dirty or verminous condition. A tactful head teacher, who possessed the confidence of the parents, could effect a great improvement in the cleanliness of the pupils. In the Belle Vue Infants' School, Bradford, the mothers were free to visit the school one day a month in order to see their children at work. After school was over, various matters affecting the welfare of their children, such as diet, clothing, means to secure cleanliness, etc., were discussed, and useful information given and exchanged. With the help and advice of the doctor it had been possible to introduce new and better methods of teaching, and to secure improved teaching apparatus. There should be an improved ideal of the work of the Infants' School. It was more important at this stage that children should be taught to practise the rules of health, than that they should be taught the rudiments of learning. There should be time to teach and to form good habits, and this should be regarded as the essential work of the infants' school.

Miss Dora Keen (Philadelphia) emphasised the importance of having nurses to co-operate with the medical inspectors, otherwise children might be excluded from school for long periods without receiving attention ; the strain upon teachers would be greatly increased by having to make up for the irregularity of attendance, and the time and efforts of the medical inspectors become useless.

Educational authorities should direct teachers to refer immediately to the medical inspector any child who failed to make progress in school. While the alert teacher would do this without direction, yet the average teacher was not inclined to regard health as of equal importance with study, and children thus frequently struggled in vain against defective eyesight or other defects for, perhaps, six months while awaiting their turn in the routine of inspection, a period long enough for them to become thoroughly discouraged, if not to have fallen hopelessly behind in their standing.

Miss Curtis (Queen Victoria Jubilee Nurses' Institute) pointed out that for the last nineteen years, in the absence of any complete system of medical inspection, the Queen's nurses had been in the habit of visiting certain schools, attending to minor injuries, etc., following serious or potentially serious cases to their homes, and insisting on the child being taken to a doctor. In view of the new conditions arising out of systematised medical inspection, two points must be emphasised : the nurse (1) must have undergone a thorough hospital training ; (2) must work under a doctor, and not attempt to diagnose cases. These two conditions the Queen's nurses had fulfilled. But in attending to the so-called minor ailments—in dressing cuts, burns, broken chilblains, sores, etc.—they had been accused of merely "smoothing the pillows" of the poor. In reality this was part of the school nurse's work ; nor did it "teach" the parents to be more neglectful. On the contrary, marked improvement was at once noticeable. The children

came to school cleaner ; the nurse's advice was carried into effect. So far from relieving parents of their responsibilities, the nurse actually taught them to take proper care of their children.

Colonel HENDLEY, late I.M.S. (delegate for the National League of Physical Education and Improvement), questioned the advisability of appointing experts only for the work of inspection. The proposed establishment of school clinics, and the encouragement of nurses to go beyond their province, gave some ground for the view that the claims of the ordinary practitioner were being overlooked. The only way to secure personal interest in the children, as well as a medical officer in every school, was to employ in small centres the man who knew them best, *i.e.*, the general practitioner. In large towns special doctors might be appointed. But, above all, there must be a special central department with special officers for purposes of control and co-ordination, without which there would be no scientific or useful results. The school officer should be chosen in the same way as the poor-law medical official, should show that he was properly qualified by special training for the work, and, when appointed, should have security of tenure.

Dr. MYER COPLANS described a scheme of systematic inspection which he had undertaken in sixty of the rural schools of Gloucestershire. He introduced a card system for each child and a medical register for each school. Detailed medical inspection was inadequate to prevent the spread of infectious diseases ; the remedy rather lay in the provision of improved school furniture and equipment, and in the better lighting and ventilation of the buildings. No scheme could be of avail which did not recognise the powerful authority of the head teacher with the children and his influence with the parents ; emphatically was this the case with infant schools.

LE LABORATOIRE DE PÉDOLOGIE DES ÉCOLES NORMALES PROVINCIALES DE MONS ET DE CHARLEROI (BELGIQUE, PROVINCE DU HAINAUT).

Par MLLE. PROF. DOCTEUR J. JOTEYKO.

Chef des travaux au laboratoire de Psycho-physiologie de l'Université de Bruxelles, Directrice des laboratoires de Pédologie de Mons et de Charleroi.

EN octobre 1906 la province du Hainaut a inauguré deux écoles normales, l'une pour instituteurs, à Charleroi, l'autre pour institutrices, à Mons. On y a institué un cours de psychologie expérimentale et un laboratoire de pédologie.

En parcourant le Programme des études des écoles normales du Hainaut (1906) ainsi que l'Annexe au programme on voit immédiatement toute l'importance donnée au cours de psychologie expérimentale et au laboratoire de pédologie. Institué près des écoles normales, conçu sur un plan très vaste, ayant pour mission scientifique de rayonner vers l'extérieur et placé sous la direction d'un psychologue, ce laboratoire est l'un des premiers du genre.

Voici d'ailleurs en quels termes s'exprime à cet égard *l'Annexe au Programme des études des Écoles normales provinciales du Hainaut* (pp. 8-12) " L'institution d'un laboratoire de pédologie contribuera particulièrement à orienter l'enseignement en général et spécialement les maîtres formés

dans les écoles normales provinciales du Hainaut vers la conception nouvelle du rôle de l'école et de ses méthodes. Ce laboratoire comportera des expériences et des observations nombreuses d'ordre physique, psychique, et moral, tant sur des enfants normaux que sur des enfants anormaux ou retardés. On sait qu'il existe aujourd'hui des méthodes d'observation et même des procédés mécaniques, utilisant des tests et des instruments divers, pour évaluer rigoureusement et mathematiquement, en quantité et en qualité, les facultés intellectuelles de l'enfant : perception (mesure des temps de réaction et de choix), attention spontanée ou volontaire, mémoire (visuelle, auditive, motrice ou musculaire), imagination, association des idées, abstraction, jugement, raisonnement, etc.

" Les observations du laboratoire de pédologie auront surtout pour objectif de réaliser, par des procédés scientifiques, le calcul de l'acuité sensorielle ; d'estimer la fatigue musculaire ou cérébrale occasionnée par le travail intellectuel ; d'évaluer les facultés psychiques de l'enfant, l'énergie de sa volonté, son pouvoir d'inhibition ; de mesurer sa puissance d'activité et de ténacité dans l'effort ou dans l'activité ; enfin de déterminer ses tendances normales et ses aptitudes.

" Le passage des élèves-instituteurs par le laboratoire de pédologie développera chez eux l'habitude de l'observation psychologique et leur donnera la pratique des procédés et des instruments aujourd'hui en usage pour l'évaluation des facultés intellectuelles. Il y a lieu d'espérer qu'ayant acquis le doigté indispensable, animés de l'esprit de recherche et de découverte qu'on se sera efforcé de leur inspirer, ils continueront, au sortir de l'école, leurs expériences et leurs observations. Dès lors, ces travaux personnels, généralisés, permettront de réunir peu à peu les matériaux utiles à une science plus vraie de la psychologie de l'enfant, de ses moyens physiques et intellectuels et aussi des caractéristiques individuelles, dont il faut toujours tenir compte si l'on ne veut s'exposer à faire fausse route dans l'éducation particulière de l'enfant."

La directrice du laboratoire de pédologie est en même temps professeur de psychologie expérimentale.

En effet, la pédologie est avant tout psychologique. Connaître la nature intellectuelle et morale de l'enfant, c'est connaître les lois et les faits de la psychologie expérimentale. La nature physique de l'enfant est certes aussi intéressante à connaître, mais ici encore il y a un point de vue psychologique, car on recherche à trouver un rapport entre le développement physique de l'enfant et l'intelligence. Et l'étude des facultés mentales des anormaux, c'est encore de la psychologie, mais c'est de la psychologie pathologique ou morbide.

Or de grandes difficultés ont surgi tout d'abord un peu partout. On ne s'improvise pas expérimentateur. D'ailleurs, la psychologie expérimentale, cultivée par des savants dans des laboratoires des universités, n'était nullement mise à la portée du corps enseignant des écoles.

Si des malentendus ont surgi c'est faute d'une préparation scientifique suffisante. L'introduction de la psychologie expérimentale dans le programme des écoles normales écartera toute difficulté à cet égard. Elle a droit d'y figurer non seulement à cause de son importance pour la pédagogie, mais aussi à titre de science développant l'esprit scientifique et donnant une culture générale. Elle doit donc figurer au programme, ne fût-ce qu'au même titre que la physique et la chimie.

Les élèves des écoles normales de Mons et de Charleroi sont initiés au maniement des instruments, et les mensurations prises sur eux sont utilisées pour la constitution des *fiches médico-pédagogiques* (ou *pédologiques*) individuelles. La partie médicale de ces fiches incombe au médecin attaché à chaque école ; la partie psychologique, physiologique et anthropométrique appartient à la directrice du laboratoire de pédologie, aidée du médecin, du professeur de pédagogie et du professeur d'éducation physique.

L'outillage très complet du laboratoire n'a pas uniquement un but éducatif immédiat : il permettra d'entreprendre des recherches originales dans les différents domaines de la psychologie expérimentale et de la pédologie.

Le cours de psychologie expérimentale et de pédologie se donne en troisième et en quatrième année d'études, à raison de deux heures par semaine dans chaque classe. Ces deux heures de cours se donnent l'une à la suite de l'autre, la première étant employée par le professeur à l'exposé théorique de la question examinée avec quelques démonstrations, la seconde heure étant consacrée exclusivement aux expériences. Les applications pédagogiques immédiates de ces données expérimentales sont exposées avec tous les détails qu'elles comportent. A la fin de chaque chapitre de psychologie nous nous rendons dans les écoles primaires, qui ont bien voulu s'associer à nos travaux, afin que les élèves des écoles normales soient en mesure de prendre des mensurations sur les élèves des différents âges.

Ce qui paraissait inabordable, inintelligible, si l'on s'en était tenu aux descriptions seules, devient du coup concret, compréhensible et, devons-nous le dire, intéressant au plus haut degré, dans un cours de psychologie pratique. Qu'y a t-il, à la vérité, de plus attrayant, que les observations, les faits relatifs à nous-mêmes ? C'est là le pouvoir attractif de la psychologie.

Mon *Aide-Mémoire de Psychologie expérimentale et de Pédologie* est en voie de publication dans *l'École nationale* (depuis le 1 mai 1907), revue pédagogique belge publiée par M. Mirguet. Il paraîtra en librairie par fascicules (pour paraître, I[er] fascicule : *Les Sensations : examen des organes des sens*).

Percival Sharp, B.Sc. (delegate, St. Helens Education Authority), inquired what was the use of medical inspection without treatment, and of instruction in hygiene without hygienic practice. On the other hand, there was a danger of the school doctor's being unskilled in pedagogy, and, though himself lacking knowledge of the child's mind and development, instructing the teachers in the principles of education.

Mr. Wm. L. Clague (L.C.C. Education Staff) : Unless there was cordial co-operation between teacher and doctor in school, any system of medical inspection would be a failure. Teachers, if approached in a right spirit, were not apathetic, as had been stated. They were ever eager to help, and simply needed direction. Several doctors had mentioned that they took special pains, when examining the children, not to interfere unduly with school work. This was in itself laudable ; but the teacher should be trained to regard it as of paramount importance, and not as an interference. Until this was secured progress would be slow. Dr. Friedel would modify the methods of public instruction, and perhaps in this way additional time might be gained, which could be devoted to school hygiene. Dr. Marion Hunter had made a passing remark on the little sleep which many slum children were able to get. This important matter, it was to be hoped, would receive fuller treatment. Already, in some of the London schools, a time for sleep

was allotted on the time-table—a priceless boon for the little ones in the poorer districts. How long were we to remain in the domain of mere theory ? The Scotch Commission laid it down as fundamental that " physical training should be regarded as of equal importance with mental training." Yet we still give an hour or two to the one, and twenty hours or more to the other. Surely to things of equal importance equal amounts of time should be given ; and it might not be unreasonable to expect that, in the near future, at least a quarter of school time will be devoted to the physical side of education.

Dr. REEVE (Toronto) thought that the large majority of medical men in Ontario undoubtedly held that the amount of brain work exacted of adolescents was excessive. Wherever lay the responsibility for this unfortunate condition of things, it did not rest with the teachers, who were, of course, bound to obey the regulations. They would hail the day when the influence of the doctor would have greater weight in limiting the strain of school life upon the sensitive organisms of young folks, and in aiding the teaching profession to secure a better order of things.

Herr DIREKTOR FRANZ DORR (Frankfort) remarked that he had never heard of any German school doctor trying to turn his work in connection with the school to private account. It would be a mistake to make kindergartens obligatory ; the family should be allowed some scope. We were apt to overrate school and school-work. Instruction in hygiene should not be regarded as a theoretical subject, but should pervade the whole work of the school. If medical men were trained in psychology and pedagogics as well as in medicine they might be members of the school staff, and so help in every way to render school life more hygienic.

Dr. IDA BENDER (delegate, Buffalo, U.S.A.) emphasised the importance of a proper co-ordination of school time-tables. Experience both as a doctor and a teacher had taught her that therein lay the solution of the problem of overcrowded curricula. But the application of this principle was necessarily limited. It was far more important to establish proper personal habits during childhood than to convey formal instruction in the theory of hygiene.

ORGANISATION DU " SERVICE MÉDICAL " A L'ÉCOLE MATERNELLE DE CAUDEBEC-EN-CAUX.

Par Mme. CH. GEST (née CREVEL),

Lauréate du Prix Huiart ; Directrice d'école maternelle actuellement au Havre.

CE qui tue le plus d'enfants, c'est l'ignorance qui néglige les soins essentiels et perpétue les traditions stupides ; pour remédier à ce pénible état de choses, il faut instruire les mères et les adultes, leur démontrer que leur tâche n'est pas terminée en donnant le jour à de frêles créatures, qu'elles ont une mission sacrée, une obligation naturelle à remplir auxquelles elles n'ont pas le droit de se soustraire.

Pour parvenir à rendre possible l'éducation familiale, il faut la collaboration intime des parents et des éducateurs, il faut arriver à atteindre les familles, combattre leur indifférence, les convaincre dès le début qu'il n'est pas question de porter atteinte à leur liberté, mais, au contraire, de travailler à une œuvre commune qui a pour but de rendre l'enfant le plus possible au physique comme au moral à un type parfait.

Causeries.—Conférences.

A l'école maternelle de Caudebec-en-Caux, une série de matinées familiales fut organisée, réunissant parents et adultes les dimanches d'hiver de trois à cinq heures.

Les présences augmentèrent à chacune de ces réunions et atteignirent dès la troisième les proportions de 94% de l'effectif des parents ; les adultes suivirent aussi avec beaucoup d'exactitude ces leçons d'hygiène aussi simples qu'utiles.

Pour être plus certaine du succès, la directrice faisait suivre sa causerie d'une partie récréative au cours de laquelle des chants, danses, jeux d'ensemble étaient exécutés par les petits élèves, qui recevaient en récompense de leur jeune talent une collation offerte par des "Amis de l'école." Les sujets traités furent : Préservation de la tuberculose, propreté corporelle, alimentation, le vêtement, le sommeil, le lit, la chambre à coucher, les exercices corporels, les jeux, mouvements, la punition, le châtiment corporel, rôle de la famille et de l'école dans l'éducation familiale.

Le résumé succinct de chaque causerie était polycopié et remis aux auditrices qui emportaient sur cette feuille comme le "vade-mecum" indispensable aux mères des règles élémentaires d'hygiène.

C'est par ces groupements de parents et maîtres où naissent forcément la confiance et la sympathie, qu'il est seulement possible d'arriver à rendre efficace l'organisation médicale scolaire complète.

Inspection Médicale.

L'inspection médicale constitue un service social ; elle a pour but :

(1) d'améliorer la race ;

(2) de conserver la population enfantine ;

elle ne saurait donc être l'objet de trop de soins. Tout élève est soumis, dès son entrée à l'école, après autorisation du père ou chef de famille, à une surveillance constante exercée quotidiennement par la Directrice, qui assume en cela l'office de la mère dans la famille ; périodiquement le médecin-inspecteur visite les petits écoliers. La surveillance médicale a pour objet :

(1) Le développement ;

(2) La variation de l'état de santé.

Au point de vue du développement les observations trimestrielles ont paru nécessaires, c'est ce qui a donné lieu à la création du "Bulletin." Quant à l'état de santé, une surveillance constante est exercée par la directrice qui, le cas échéant (comme ferait la mère de famille), appelle le médecin-inspecteur.

Cette surveillance est complétée par des visites hebdomadaires ou même bi-hebdomadaires (selon les saisons) du médecin.

Une sorte de comptabilité sanitaire est ouverte.

1. Un journal de santé est tenu par la directrice, qui y consigne ses remarques personnelles et les observations correspondantes faites par le docteur.

2. Un registre (fiche) est ouvert consacrant un feuillet à chacun des petits élèves.

Dispensaire Maternel.

L'inspection médicale ne se borne pas à recueillir des observations, elle se complète par un service thérapeutique créé en février 1906 ; une

sorte de dispensaire fonctionne, on donne des soins d'urgence, on fait de petits pansements ou applique les médications modificatrices à ceux dont les familles par négligence, ignorance ou pauvreté n'apportent pas toutes les précautions que réclament les affections d'apparences bénignes, ou encore à certains dont les mères absorbées par des travaux matériels ne peuvent administrer des traitements prolongés.

Le docteur prescrit et la directrice applique les ordonnances.

Les frais pharmaceutiques sont payés par la Caisse des écoles.

L'inspection médicale ainsi comprise permet de guérir beaucoup d'affections légères, d'empêcher le développement des affections transmissibles, de prévenir l'invasion d'affections préparées par une longue incubation, d'améliorer le développement physique des sujets débiles.

Les préceptes d'hygiène alimentaire raisonnée suffisant pour tenir l'enfant en état de santé parfaite, le menu ordinaire de la cantine, qui fonctionne toute l'année, est spécialement composé pour le jeune âge (deux à sept ans) ; il varie selon les saisons, sans cependant que la viande y figure sous aucune forme.

UTILITÉ DE L'EXAMEN DE LA VUE ET DE L'OUÏE DANS LES ÉCOLES COMMUNALES.

Par le Dr. Stackler, Paris.

Les élèves doivent être placés en classe d'après l'état de leur vue et de leur ouïe. Pour la vue, cette mesure est nécessaire ; pour l'ouïe, elle est très utile.

Les parents ou les maîtres nous signalent parfois la faiblesse de la vue de l'écolier ; ils ne nous signalent jamais la faiblesse de son ouïe ; c'est que les parents n'envoient pas en classe les enfants dont la surdité à la parole est complète ou avancée.

La surdité observée à l'école est très incomplète ; elle passe inaperçue des maîtres et des parents ; souvent elle est prise pour de l'inattention.

Je la recherche à l'aide de la montre. Nos écoliers faibles de l'ouïe entendent le maître qui enseigne dans le silence de la classe à voix haute et bien articulée. Mais que le maître parle d'une voix moins forte, dans une classe moins silencieuse, ou dans le bruit des escaliers ou des cours, l'élève dur d'oreille l'entendra mal ou ne l'entendra plus ; il saisira difficilement les nuances de la voix avec leurs significations ; enfin, son ouïe pourra varier d'un jour à l'autre.

Or, beaucoup de ces élèves faibles de l'ouïe (leur âge est de six à quinze ans) deviendront plus tard sourds à la parole, si, dans l'enfance, leur infirmité est abandonnée à sa marche naturelle.

Conclusion : au commencement de l'année scolaire, la vue et l'ouïe de chaque écolier seront examinées. Si elles sont reconnues faibles, elles seront examinées annuellement deux fois.

I. Examen de la Vue.

A l'école, faiblesse de la vue signifie " troubles permanents de la vision " (myopie, hypermétropie, astigmatisme).

Vue de près.—L'élève lira son livre de classe (25–35 centimètres).

Vue de loin.—L'élève lira à distances variées (5 mètres) la carte fixée au mur. On devra noter le strabisme apparent, latent, les anomalies monoculaires, et, au terme des études, la vision des couleurs.

II. Examen de l'Ouïe.

Les élèves d'une même classe seront examinés comparativement (même montre, même local, même silence).

L'étendue de l'ouïe sera évaluée en centimètres. Elle est représentée dans mes observations, pour chaque élève, par un groupe de deux nombres : le premier nombre indique l'ouïe de l'oreille droite ; le second, celle de l'oreille gauche. Ces groupes disposés les uns au-dessous des autres, en ordre de valeur croissant de haut en bas, constituent le *tableau de l'ouïe* de chaque classe. La place de chaque groupe dans le tableau est fixée par le plus faible de ses deux nombres.

Ainsi, en lisant le tableau de haut en bas, on rencontrera successivement : l'ouïe nulle à la montre, mauvaise, faible, bonne, très-bonne.

Dans tous les milieux, à tous les âges, la valeur de l'ouïe est relative. A l'école j'ai pris, dans chaque classe, comme terme de comparaison, l'ouïe de la majorité des élèves, c'est *la bonne ouïe* de la classe. Les autres élèves ont l'ouïe *faible* ou *mauvaise.*

Ouïe faible.—Les élèves entendent $\frac{1}{2}$ environ par rapport aux cinq ou six élèves qui entendent le mieux.

Ouïe mauvaise.—Les élèves entendent $\frac{1}{3}$ ou moins encore, jusqu'à l'ouïe nulle à la montre d'une oreille ou des deux oreilles.

Ces tableaux montrent :—

1° Combien l'audition varie d'un élève à un autre ;
2° D'une oreille à l'autre ;
3° Quand une oreille est mauvaise, l'autre est ordinairement faible ou mauvaise, rarement très bonne.

La cause habituelle de *l'ouïe faible* chez l'écolier peut effectivement agir sur les deux côtés (*végétations adénoïdes du rhino-pharynx*).

Les résultats de notre examen seront communiqués aux maîtres et aux parents.

Les *élèves faibles de la vue* s'installeront au *premier rang*, près du maître, du tableau, et de façon à tirer le meilleur parti de l'éclairage de la classe.

Les *faibles de l'ouïe* seront placés dans *leur voisinage ;* les *autres élèves* à la suite, dans l'ordre du *tableau de l'ouïe.* Dans l'intérêt de la discipline, le maître pourra modifier cet ordre, mais modérément.

L'élève dont l'*oreille droite* vaut mieux que la gauche sera placé *à droite* du maître ou *vice versa.*

Les élèves les plus grands qui gêneraient la vue des autres seraient placés sur les côtés.

Ainsi la place de chaque élève indiquera à l'enfant lui-même, à ses parents, à son maître, quelle est la valeur de sa vue ou de son ouïe par rapport à la vue et à l'ouïe de ses camarades.

Mieux que les communications verbales ou écrites, *ce procédé combattra l'ignorance* et l'insouciance des maîtres et surtout *des parents* concernant les infirmités des enfants dont nous nous occupons ici.

1. Prévenus, les parents consulteront, à temps, l'oculiste ou l'auriste, qui par un examen détaillé corrigeront ou complèteront le nôtre, et prescriront les verres ou les traitements convenables ;
2. Prévenu, l'élève, au terme de ses années scolaires, ne choisira pas une profession contre-indiquée pour les jeunes gens faibles de la vue ou pour ceux dont la surdité naissante, méconnue, non soignée dans l'enfance, se développe habituellement avec l'âge.

L'importance de nos examens se démontre par les chiffres suivants :
Sur 753 garçons ou filles de six à quinze ans :

13 pour cent—Faibles de la vue (Dans 6 pour cent des cas, les parents l'ignoraient et dans 7 pour cent ils le savaient.)

36 pour cent—Ouïe plus ou moins faible. (Ni les parents, ni les maîtres ne le savaient. Tous ces élèves ne deviendront pas sourds à la parole ; mais le contingent des sourds sera fourni plus tard surtout par eux.)

Ces 36 pour cent se subdivisent ainsi :

(*a*) 7 pour cent—Ouïe tantôt faible, tantôt bonne.
(*b*) 17 pour cent—Ouïe toujours faible.
(*c*) 12 pour cent—Ouïe très mauvaise. Des soins immédiats sont nécessaires.

Il est entendu que nos examens concernent les élèves de 6 à 15 ans, seulement les élèves de c t âge.

L'examen patient à l'aide de la *montre* donne des résultats assez approximatifs pour suffire à remplir notre but principal, qui est d'amener les parents à faire examiner et soigner la gorge ou le nez des enfants ayant *l'ouïe mauvaise* ou *simplement faible.*

L'examen par la *voix chuchotée* est insuffisant ; il révèle *uniquement l'ouïe très mauvaise.*

THE PROPOSED INSPECTION OF CHILDREN IN ELEMENTARY SCHOOLS.

By J. W. WILLIS BUND, M.A.
Chairman, Worcestershire Education Committee.

THE Bills now before Parliament providing for the medical inspection of elementary schools place upon local authorities new duties and new responsibilities, and open up a prospect of achieving some most useful results if the work is conducted on distinctive lines. To make the work of any real value, it must, as far as possible, be systematic, that is, conducted on uniform principles and on a uniform system, otherwise the statistics that will be collected from it will be valueless and misleading. The following suggestions are made for establishing a system that can

be generally used in our public elementary schools. Doubtless the suggestions and criticisms of members of the Congress will modify and improve them, they are merely offered as a basis from which to start discussion.

1. In a very large number of public elementary schools in England and Wales there is now either no medical inspection or no regular systematic inspection. If there is an outbreak of some infectious disease then the children are inspected for that disease and for it alone. General inspection as a regular mode of dealing with children, with a view to classification followed by special treatment adapted to the different cases, does not exist.

2. This it is now proposed to introduce, and the question is how can it be best carried out so as to be made of the greatest possible use.

3. The inspection, it need hardly be said, should be made by a properly qualified person. Ratepayers protest loudly against the appointment of new officers at high salaries, but if a staff insufficient in number and qualifications is appointed, it will only bring about failure; a weak staff will make a complete inspection impossible; an inefficient staff will do far more harm than good, it would be far better to have no inspection at all. An efficient staff must be well paid with regard to the work to be done; a salary fixed on the scale of that now paid to District Medical Officers of Health will not secure efficient inspectors.

That thorough inspection means economy to the ratepayers is obvious from two things:—(1) That the amount of the Government grant depends on attendance. (2) That the attendance can only be kept up by keeping the children free from infectious complaints. A casual or inefficient inspection will not prevent an epidemic outbreak, which a thorough inspection might have done; no allowance is now made in the grant for children excluded on account of infectious diseases. It follows that inefficient inspection leads to a loss of grant which will probably represent more than the difference between a proper and an improper annual salary.

4. If it is resolved to appoint properly-qualified inspectors, should they be the district medical officers or independent officers of the local education authority? If the inspection is to be really efficient, there is no doubt but that the latter is the right line to take, for (1) the district medical officer has usually quite enough to do without any addition to his duties; (2) the district medical officer is not often the type of man required for the work, and (3) as the district medical officer is servant of the District Council, it would be most undesirable that he should be also the servant of the County Council. No man can serve two masters. When the officer was wanted to inspect schools he would be doing District Council work, when he was doing County Council work he would be wanted for District Council work, so there would be constant friction and the work would at best be very superficial.

5. It may, therefore, be taken that the officer to do the work of inspection should be a County Council officer properly qualified and properly paid. It would be desirable he should be a whole time officer, but this would greatly depend on the nature of the district and the number of children to be inspected.

6. This gives rise to a very important point, and one on which opinions will greatly differ, what number of children can a man thoroughly

inspect ? The obvious answer is that it wholly depends on the character of the inspection. If it is assumed to be thorough, no one, taking both the new admissions as well as the numbers on the books, should be responsible for more than 10,000 children. In Worcestershire we have 40,000 children on the books, and we estimate that the work might be done by four whole-time inspectors. So that this part of the subject may be thus summed up :—

(*a*) The inspector should be fully qualified ;
(*b*) That he should be a County Council officer, not an officer of the Board of Guardians or a local officer ;
(*c*) That he should not have more than 10,000 children under his charge ;
(*d*) That the salary ought not to be less than £400 a year.

On this last point it seems only reasonable that part of the salary should be paid out of the County Rate and part out of the Imperial Exchequer. No one could say that the health of the children of the nation is not quite as much a national charge, payable out of national as opposed to local funds, as the health of the sick poor, and if part of the salary of the one is paid out of the Exchequer, so part of the salary of the other should be.

7. As to the duties of these officers. As the case now stands, all children, unless taught elsewhere in a way that satisfies the magistrates, must attend a public elementary school. The duty of the school attendance officer is to compel this to be done and to summon the parent if it is not. There is no excuse that the child is unhealthy or delicate, unless it is actually suffering from some infectious disease. Those children and those diseases are dealt with by the present system of inspection. As every child can *prima facie* be made to attend school, what is wanted is to get, as far as practicable, some idea of the lines on which each child's development should proceed—in fact, to educate the body exactly as the mind is educated. The children are the citizens the State has to depend on for the future. Are they growing up a healthy vigorous race, or, if not, can the causes that are producing a contrary effect be ascertained and remedied ? Viewed from this standpoint, the enormous importance of proper inspection is obvious, and the danger of improper inspection is equally obvious. It really means that we have at last recognised that the same treatment cannot and ought not to be applied indiscriminately to all children, but that there should be classification and a proper course of treatment applied to each class.

8. The proposed inspection would be that on each child coming to school it should be submitted to a thorough examination as to whether it was or was not in a condition other than normal, whether it had any tendency to any specific abnormality. The normal children would form a class by themselves and the abnormal by themselves, the abnormal being divided into classes according to the respective nature of their abnormalities—*e.g.*, sight, spine, mental condition, etc. Whatever was the proper treatment for the vision should be carried out, and if to do this separation was necessary, separation should be made. All abnormal children should be treated in the best way, either to cure, if curable, or to arrest the further progress of the abnormality. This being done, the importance of the annual inspection comes in. A register of the

condition of all children on admission would be made; this would be added to annually, so that each child would have a sort of health dossier, showing how its condition has developed and how its disease was done away with or checked. If the child at any time became normal, it would pass into the normal class and be dealt with as other children; if not, it would remain in the abnormal class and be dealt with in the best possible way.

9. It is obvious that the method here indicated would involve a great change in our present educational system, as it would necessitate a large number of special schools. It will be said that this means a very large increased expenditure, and this must be admitted, for at some of the special schools the children, as a rule, would have to be boarders. But the difficulty might be met by grouping counties for special school purposes, and thus reducing the cost. It must also be borne in mind that, if these abnormal children are allowed to grow up without some attempt at cure, it means that it is only a question of at what time in their lives they will have to be included in the class supported by the rates. Taken young it is possible they may never come on the rates, but be able to maintain themselves; left to develop their abnormal tendencies, they will certainly at some time cease to be able to maintain themselves, even if they can temporarily do so. Taken young they may have a chance, allowed to drift they have none.

10. The question of these abnormal children raises such a number of important considerations, that they cannot be dealt with in the limits of a paper; questions such as the bearing of the subject on the alleged increase of lunacy, of the effect of allowing these abnormal people to become the parents of our future countrymen, of the deterioration of race, all of which are outside the present subject. There are, however, two practical points that it would be desirable to have the views of the Conference upon:—

(*a*) The much vexed question of children under five attending school If the children are being brought up in a way that tends to develop and foster any abnormal tendencies, it seems only right that, as early as possible, children should be inspected with a view to classification, and that to enable this to be done the children from three to five should attend not for learning but for inspection, so that the authority who will have to deal with them in the future will be able to know the requirements it will have to meet.

(*b*) As to abnormal children, who, it becomes clear, cannot profit by the ordinary school curriculum, how far is it well to compel their attendance at it? Are they worth the cost of the same education as is given to normal children? If the average cost for a normal child is £3 10*s.* throughout England and Wales, could not the cost of the abnormal child not sent to a separate school be reduced to a lower figure? If it was the case of training a horse when it was once proved that he would not stand training it would not be continued on the same lines; does not the same rule apply to children?

11. To make the system of medical inspection really valuable, the Board of Education or some Government Authority should lay down

the lines on which it is to go, and it is suggested that the lines indicated above should be followed.

(*a*) Thorough examination and a record of every child admitted to a public elementary school.
(*b*) Annual examination and record of each child as it remains on the school books to show if it should be placed in the normal or abnormal class.
(*c*) Clear and distinct rules as to what constitute normal and abnormal and for the treatment of the latter.
(*d*) Provision for the universal application of the same rules in England and Wales.

If the Government proposals are carried out on these lines they will lead to a very wide-reaching change in our present system of education, and will show that medical inspection does not merely mean dealing with epidemics and isolated cases, but will be a system whereby education will mean the development of the body as well as the development of the mind.

Mr. Macleod Yearsley (London) remarked that, according to Sir Lauder Brunton's statement at the opening of the Congress, obstruction by the Board of Education had militated against the success of the Congress. This was confirmed by the Government's attitude in regard to medical inspection, as witnessed by Mr. McKenna's remarks in the House of Commons reported in that morning's *Daily Mail*.

Speaking as an ear specialist, Mr. Yearsley called attention to the large number of children who were not deriving full benefit from their education owing to deafness and ear discharges. Medical inspection would select and help such cases, whose defects were due to parental ignorance and indifference. Increase of special schools might mean increase of expenditure, but it also meant a decrease in the numbers of undesirables, incapables, and criminals.

Dr. M. D. Eder (London) agreed with Mr. Willis Bund that, unless medical inspection were efficient, it would be worse than useless. The inspector should preferably be responsible to the local Education Authorities rather than be a Medical Officer of Health. The interest of the average M.O.H. in hygiene, with a few brilliant exceptions, was limited to the question of zymotic disease. Obviously far more was required of a school doctor.

A member who omitted to give in his name or a *précis* of his remarks urged that inspection of schools would be efficiently carried out if left in the hands of the Medical Officers of Health. No definite argument was adduced.

Dr. A. H. Hogarth (London) pointed out that all were agreed that the first essential in every country for a sound scheme of organisation consisted in establishing a competent and adequate central department at the Board of Education, or its equivalent. The question which had been raised in England (and about which a childish dispute had arisen between Medical Officers of Health and special school doctors) as to who was to carry out the actual work, was not a matter of international or of national importance. Obviously this must be left to the discretion of each local Education authority; and Mr. Willis Bund had indicated a practical scheme for a small county area. In some places the work would be done by Medical Officers of Health, in some places by general practitioners, and in others by special school doctors, As a matter of fact it would be a short-sighted policy to subject or subordinate school hygiene to the general sanitary administration of the country, which, at the present time, was very far from satisfactory. In the near or distant future school hygiene would constitute a complete sub-department at a newly-organised Department of Public Health under a responsible Minister of State. Meanwhile it was better to allow the work to develop on its own lines under expert guidance, and keep the wider ideal in constant view.

Dr. R. W. LOVETT (Boston, U.S.A.) suggested that the question of school inspection would be best advanced by a campaign to educate public opinion as to its necessity. In Massachusetts this was being attempted. The chief obstacle to progress was to be found in the general apathy of the average medical practitioner, whose knowledge should be brought up to date in the matter of school hygiene, with special reference to defects of eyes and ears. Granted that a central authority was the first essential, care must be taken that local interpretation of its decrees did not nullify their force. The Board of Education was obviously afraid of a popular movement.

Dr. J. J. CRONIN (New York) expressed his surprise at the tone of the discussion. Was England going to adopt a scheme which had been abandoned in the United States? There the Public Health Department had begun to carry out the work of medical inspection, but it had been found inadequate.

MEDICAL SUPERVISION OF SECONDARY SCHOOLS IN SWEDEN.

By DOCTOR MED. GOTTFRID JÖRNELL.

To a certain extent Sweden may claim to be regarded as a pioneer country in respect of the appointment of medical officers in conjunction with the State schools. Mention is made of such officers as long ago as between 1830 and 1840, and in 1863 there was issued an ordinance prescribing the duties they were required to fulfil. It is fair to assume that as early as 1868 all the public schools in the kingdom had medical officers attached to their staffs. The school Codes of 1878 and 1892 contained paragraphs which still further extended the sphere of activity in the school allotted to the medical officer. The Code at present in force bears date February 18, 1905. It contains detailed prescriptions concerning the duties of school medical officers, drawn up entirely in accordance with modern hygienic principles.

The work which is considered in this country (Sweden) to come within the purview of a school medical officer may be summarised under the following headings :—

1. To examine the scholars medically, in order to find out the state of health of each;
2. To adopt preventive measures against the spread of infectious complaints;
3. To superintend the school premises as regards their sanitary condition;
4. To provide against the scholars being overburdened with lessons, etc., and thereby becoming overworked;
5. To attend indigent children, in case of illness, free of charge; and
6. To draw up statements upon any problem that may arise regarding school hygiene, and to hand in periodical reports of the work that it has fallen to their lot to discharge.

It is in accordance with the principles above stated that the "Instructions to School Medical Officers," issued as one section of the new Code of 1905, have been formulated.

The State Secondary Schools Supervisory Board has at its disposal the services of an expert in hygiene, and he is consulted on matters belonging to that aspect of education.

On the staff of every school there shall be a medical officer—appointed and remunerated by the State—whose duties are :—

1. To examine candidates for entrance to the school free of charge, if they are in indigent circumstances.

[In order to obtain entrance into a State secondary school, a candidate must be furnished with certificates to show : That he or she has been vaccinated, and that he or she is not a sufferer from any illness or defect which would render him or her unfitted to take part in school work, or which might exercise a deleterious influence on his or her school-fellows.]

2. At the beginning of every term, in the presence of the teacher of gymnastics, to carry out a careful investigation of each one of the pupils, and to hand in to the headmaster or the class superintendent a report upon the result of such investigation. The pupils' sight and hearing are to be tested once every year.

3. To conduct a medical examination of any pupil, either at the suggestion of the headmaster or otherwise, whenever his or her state of health seems to require it.

4. To afford the headmaster any advice that may be necessary or expedient in case of an outbreak in the school of any infectious complaint, and to take measures to prevent the spread of the infection. A definite period of absence from school in the case of pupils having caught some infectious complaint, varying with the nature of the disease, is not prescribed by the school Code. In no case, however, is it permissible for a pupil who has had any such illness to return to school until the school medical officer shall have pronounced him or her free from infection, and have drawn up a certificate to that effect.

5. To attend indigent children free of charge. This article does not now appear in the school Code ; it has long been in force with reference to Swedish public schools.

6. To inspect all the school buildings thoroughly, and to be present at the teaching of gymnastics at least once a month. In regard to the latter duty, attention should be particularly directed to seeing that the pupils are not set to execute movements or do exercises which are unsuited to their physical powers.

7. To spend at least one hour per week on the school premises, for the purpose of affording advice, if such be needed, to the headmaster, the other masters or the pupils. This hour of attendance is to be employed partly for the reception of any member of the school community who desires to consult a medical man, and partly for the inspection of the conditions under which the pupils do their work ; how they are seated as regards light and air, etc., how they sit at their desks, the posture of their bodies, etc., and what degree of mental alertness they display at their lessons, etc., etc.

8. To supervise the curriculum of work. The chief point for the medical officer to observe here is whether work and leisure are suitably apportioned in the curriculum, so as to avoid the occurrence of overstrain among the pupils. If the medical officer finds cause to disapprove of the curriculum in any particular he should bring the fact to the notice of the headmaster.

9. To hand in annual reports upon duties performed by virtue of office.

10. When new buildings are being erected or old ones altered or repaired, to make sure, provided no other specialist in hygienic matters

is called in, that the requirements of hygiene are being duly and adequately fulfilled in the building work as it proceeds.

11. To be present at any meetings of the staff of the school where questions pertaining to the health of the pupils or the sanitary arrangements on the school premises are being debated; to take active part on such occasions not only in the discussion, but likewise in the voting or drawing up of the resolution of the meeting.

[Thus as far as hygienic matters are concerned the school medical officer is not merely an advisory member of the staff; he is also empowered to assist in the framing of decisions.]

The school medical officer has furthermore to do what in him lies to see that the regulations laid down respecting physical education and the sanitary arrangements at the school are duly observed and carried out.

These regulations are, briefly, as follows :—

(*a*) The schoolhouse should be in a healthy situation, with plenty of space near it for outdoor games; a so-termed play-shed for resting, sheltering or hanging clothes in should be erected on the outskirts of the playground.

(*b*) The rooms intended for teaching in, etc., are to be constructed in accordance with regulations issued specially in regard to them.

(*c*) The gymnasium must be provided with a changing-room, a douche and a bath-room conveniently near at hand.

(*d*) Opportunities should be provided during the summer for the pupils to receive instruction in swimming.

(*e*) With reference to the heating, ventilating, lighting and cleaning of the various rooms, lobbies, etc., in the school-buildings, the headmaster shall draw up, in consultation with the school medical officer, a detailed plan of procedure, to be scrupulously followed out by those whom it concerns. A copy of that plan of procedure should be nailed up on the wall in some suitable place in the school-building.

(*f*) To each pupil there should be allotted about 6 cubic metres of space and 1½ square metres of floor area. The pupils' desks should vary in size to accommodate scholars of different heights. Short-sighted and deaf pupils are to have suitable places assigned to them by the school medical officer.

(*g*) Text-books, etc., are to be printed in a type which is sufficiently large and clear to preclude any danger of the sight of the pupils being injured by the use of them.

The school medical officer is not required under the present Code to do any teaching work.

Any qualified doctor may apply for and obtain the appointment of school medical officer. It has not been considered essential that he should have gone through a special course in school hygiene, inasmuch as instruction in hygiene forms part of the course of study which all medical students take up when preparing for their qualifying degree.

What the effect of the new Code will be as regards the health of schoolchildren it is as yet difficult to determine, for only a brief period of time has elapsed since it became law. If it is fair to judge, however, from the results already observed, and, above all, from the exceedingly cordial co-operation that prevails between the teachers and the medical officers at the schools, there is every reason to believe that the new Code will work very beneficially in the interests of the generation now attending school.

MEDICAL AND PHYSICAL EXAMINATION IN SECONDARY SCHOOLS.

By Dr. Mary Coghill Hawkes.

The Central Foundation School for Girls, where Dr. Coghill Hawkes has introduced, as far as possible, the methods practised in Scandinavia, is an endowed secondary school with a large percentage of Russian, German and Polish children. A clinic for medical remedial treatment has been established in the school itself, with a medical gymnast, specially trained in Swedish methods, in charge, under medical supervision and direction. The medical officer visits the school once a week, and at the beginning of the term all the children are thoroughly examined, and the weakly and undeveloped given a special course of remedial exercises. The fee for this course is five shillings per term of twelve to fourteen weeks. Children with marked curvatures of the spine, rickets and other defects have daily treatment in the clinic for half an hour; the fee for this is one shilling per week, and both these courses are self-supporting. In all cases notification of defects and deformities is made to the head-mistress, who informs the parents. By these frequent examinations the medical inspector is able to note the progress, or the reverse, in the physical condition of the children.

The educational gymnast, or health mistress, is a most valuable asset in the scheme. She undertakes all the educational gymnastic classes throughout the school, and supervises the special remedial work. She is also responsible for games and swimming. During 1904–5 47·4 per cent. of the children were referred for special treatment.

The following conclusions might be drawn from the work. The general physique was not good, and there was a want of stamina among the older girls. The teeth were in a bad condition, leading to anæmia, headache, and other evils. Narrow chests abounded, and many girls had organic defects of the eyes. Headache, spinal deformity, ear troubles and rheumatism were also found among the children, but there was a singular absence of lung disease and of valvular heart disease. There was often considerable difficulty in making parents realise the necessity for small operations, such as the extraction of teeth and excision of tonsils and adenoids.

A report was given of numerous cases of children who had been under treatment during periods of from six months to two years, with marked improvement in most of the cases, and the head-mistress testified that "the inspection had reacted on the physique of the school with beneficial results."

This scheme might be developed on a larger scale in connection with the medical inspection now being carried out by the Education Department of the London County Council. It should be possible to establish a clinic, on the lines evolved in Denmark and Sweden, in connection with each group of schools under the Education Department to which defective children could be referred for treatment, and such treatment should

be recognised as part of the time devoted to educational work. In this way the early discovery and treatment of many abnormalities and deformities would in a measure reduce the number of cripple schools, and would, by increasing the physique of the feeble and weakly, prevent their ultimately becoming a burden on the rates, and convert them into healthy citizens.

Dr. C. PASCHEFF (Sofia) said that in Bulgaria school medical officers had been legally established since 1904. The staff consisted of twenty-six doctors and a chief inspector, the former being solely responsible to the Department of Education, and being paid a salary of about 3000 francs per annum. Their duties were (1) to supervise the school buildings and furniture ; (2) to examine pupils upon admission to school, and to take all necessary steps for the prevention of infectious disease ; (3) to make anthropometrical measurements ; (4) to deliver lectures on school hygiene, first aid, and the rudiments of medicine, for the benefit of the teachers ; (5) to instruct the pupils in the elements of anthropometry, physiology, general and school hygiene ; (6) to make an annual report on the work accomplished. The results of the medical examination were entered in special note-books provided separately for every pupil. Copies of the special regulations under which the system was worked had been distributed among the members of the Congress. In certain schools in Sofia the ophthalmologist, dentist and otologist had been introduced. Summer colonies had been organised for delicate pupils, and a benevolent society had even constructed buildings in the neighbourhood of Sofia for the same purpose. In Sofia medical supervision had been also extended to the elementary schools.

Mrs. WATT SMYTH (London) said she had just made a study of the school systems prevailing in the different parts of Bulgaria. The system of medical inspection of secondary schools, introduced four years ago, might be copied with advantage in England. Education was made compulsory in 1879, and had rapidly developed on broad lines. Twenty-five years ago, of the recruits of the Bulgarian army only 10 or 12 per cent. could read or write, now 97 per cent. could both read and write, the 3 per cent. being of other nationalities. In the secondary schools a doctor, who, in the case of girls' schools, was a lady, attended every day. A well-equipped consulting-room was provided in each school building. A separate health notebook was kept in the office by the doctor for each child. On first admission, the scholar was examined undressed, and entries were made of weight, height, chest measurement (at rest and in full inspiration), vital coefficient, muscular force, and physical defects. The sight and hearing were tested and the teeth examined, the general condition considered, and the health of the parents and the diseases from which the child had suffered noted. A medical certificate giving the history as to measles was required. The examination was repeated twice a year in the upper, and three or four times a year in the lower classes. If at this examination a child was found to be sickly, ill-developed or suffering from definite disease, the parents were communicated with, and the child given leave of absence for treatment by the family doctor. The school doctor visited the class-rooms, and, if a child was ill for more than one day, it was sent home, and not again admitted without a certificate signed by its family doctor and countersigned by the school doctor. The latter kept a special list of scholars suffering from any serious disorders, such as heart disease, and watched them carefully. It was interesting to note that during the past three years in the girls' secondary schools at Sofia no case of infectious disease from among the day scholars had got further than the doctor's consulting-room, and there had been no cases among the boarders. At the same school at Sofia, out of a class of 950, 100 had been dispensed from certain classes during the last term. All children predisposed to, or suffering from, tuberculosis were rigorously excluded ; those in whom the disease could be definitely diagnosed were sent to sanatoriums, and those who were considered to be predisposed were sent for rest and an open-air life to a "Colonie Scolaire." With reference to what Dr. Pascheff had said about benevolent effort, in Sofia a benevolent society had furnished a house, ten kilometres from Sofia,

to serve as a prophylactic home for children who were failing in health. The school doctor was responsible for the hygienic conditions of the school and equipment, for the health of the scholars, especially with regard to checking infectious diseases, and for the anthropometrical records.

The course of instruction in the rudiments of anthropometry, physiology and hygiene which, as Dr. Pascheff had described, was given to the pupils was particularly important in view of their intelligent co-operation in the future medical examination of elementary school children and the checking of infectious diseases. The doctor was consulted with regard to lessons and the framing of the time-table, and with regard to punishments. He also advised as to revaccination. Very poor children, except in cases of infectious disease, were treated at school or at home, by the school doctor, and had food and medicine supplied to them from the funds of the school bank. At intervals the school doctors held meetings, and other doctors were invited to take part in the discussions at these meetings. This appeared a very complete scheme, inasmuch as it ensured a supply of healthy teachers who, being trained in hygiene, would be fitted to apply its principles in the hygiene of the schools to which in due course they would be appointed.

Dr. Cronin (New York) expressed surprise at the omniscience of school doctors in Sweden, who were apparently able to give skilled advice as to heating, lighting, ventilation, on the one hand, and as to the eyes, ears and teeth on the other, as well as in regard to the general mental and physical condition of the children. They had, moreover, to be thoroughly versed in the pedagogical requirements of their schools concerning time-tables, curricula, etc., and even the print of the text-books in use.

SCHULZAHNPFLEGE UND SCHULE.

Von Prof. Dr. Med. Ernst Jessen, Strassburg im Elsass.

1. Die Zahnpflege ist ein Bestandteil der Schulgesundheitspflege. Ihre Notwendigkeit ist bewiesen durch die bekannten Ergebnisse der in allen Ländern ausgeführten zahnärztlichen Untersuchungen der Schulkinder.

2. Der I. Internationale Congress für Schul-Hygiene in Nürnberg, 1904, überwies deshalb die Weiterbehandlung der Frage, deren Bedeutung anerkannt wurde, dem II. Internationalen Congress für Schul-Hygiene zu London, 1907.

3. Die städtische Schulzahnklinik zu Strassburg im Elsass wurde als erste aus privater und städtischer Initiative heraus gegründet. Die an ihr gemachten Erfahrungen dienen deshalb zur Beleuchtung des Gegenstandes.

4. Sie wurden bereits verwertet durch die Gründung weiterer, zum Teil allen Anforderungen der Neuzeit entsprechender Schulzahnkliniken.

5. Das Endziel für den Internationalen Congress ist die systematische Durchführung der Zahnpflege in allen Schulen aller Länder.

Verwaltungsbeamte, Aerzte, Architekten und Lehrer arbeiten heute gemeinsam, um den Forderungen der Schulgesundheitspflege nach jeder Richtung hin entgegenzukommen. Sie wollen die heranwachsende Jugend, das grösste und wertvollste Kapital der Nation, hegen und pflegen, damit die Zukunft eines jeden Volkes gesichert ist, und in

friedlichem Wettkampf jedes Land seine Stelle behaupten kann. Zu den Mitteln, welche bisher angewandt wurden, um die Gesundheit der Jugend zu heben, ist als neues Moment die Zahnpflege hinzugekommen.

Nicht weniger als 90 % unserer Schulkinder sind zahnkrank. Da, wo die Erde mit ihren Produkten und das Wasser reichlich Kalksalze enthalten, sind die Zähne besser, sodass hier 20 % der Kinder ein gesundes Gebiss besitzen; in anderen Gegenden steigt der Prozentsatz der kranken Gebisse sogar auf 95–100. An mehreren Hunderttausend Kindern in verschiedenen Ländern ist zur Genüge nachgewiesen, dass die Zahnverderbnis die heute verbreitetste Volkskrankheit ist, dass durch sie im Kindesalter die ärgsten Verwüstungen stattfinden, und dass der Gesundheitszustand nicht nur der Kinder sondern auch der Erwachsenen unter den Folgen schlechter Mundverhältnisse stark beeinträchtigt wird.

Von den sich mit dieser Erfahrung deckenden ärztlichen Urteilen nur ein Beispiel: Bezirksarzt Dr. Landsberg in Posen sagt in einem Vortrag über "Zahn- und Stoffwechselerkrankungen in volkswirtschaftlicher Bedeutung": "Wenn die zahnärztliche Behandlung der Schulkinder durchgeführt wird, so wird eine wichtige Konstitutionskrankheit, welche uns Schulärzten wohl am meisten zu schaffen macht, eine wesentliche Einschränkung erfahren: Die Chlorose oder Blutarmut, Bleichsucht. Neben allen anderen Faktoren—schlechter Wohnung, ungenügender Zufuhr von Licht und Luft—spielt gerade in der Aetiologie dieser Krankheit die mangelhafte Ernährung eine grosse Rolle und zwar nicht bloss die mangelhafte Ernährung infolge der schlechten sozialen Verhältnisse, sondern ebensosehr die auf mangelhafter Verdauung beruhende. Wie im einzelnen die Verdauung durch das schlechte Zerkleinern und ungenügende Durchspeicheln der Nahrung ungünstig beeinflusst wird, das will ich als bekannt voraussetzen und hier nicht wiederholen; nur soviel sei gesagt, dass die zahlreichen Magen- und Darmerkrankungen der Chlorotischen, vom einfachen Magenkatarrh bis zum runden Magengeschwür einerseits, von der habituellen Obstipation bis zur Blinddarmerkrankung andererseits, einen und zwar nicht den unwichtigsten aetiologischen Faktor in der schlechten Beschaffenheit des Gebisses haben."

Die Mundhöhle ist das Haupteingangstor für die verschiedensten lokalen und allgemeinen Erkrankungen des menschlichen Körpers, und deshalb gibt es kein besseres Mittel diese Krankheiten zu verhüten, den Körper gesund und leistungsfähig zu erhalten, als die regelrechte und mit Verständnis ausgeführte Pflege der Zähne. Nirgends aber kommt der grosse Segen der Zahnpflege in höherem Maasse zur Geltung als dort, wo sie frühzeitig begonnen wird, weil in den Kinderjahren die Grundlage zur Entwickelung des Körpers gelegt wird.

Hauptsächlich für die Volksschulkinder ist die Zahnpflege von der grössten Bedeutung, weil gerade die ärmeren Leute, die bei der oft unzulänglichen und ungeeigneten Nahrung ganz besonders unter kranken Gebissen zu leiden haben, nicht in der Lage zu sein pflegen, die Hülfe des Zahnarztes aufzusuchen.

Aus diesen Erwägungen heraus wurde auf dem ersten Internationalen Congress für Schul-Hygiene in Nürnberg, 1904, ein offizielles Referat über "die Errichtung städtischer Schulzahnkliniken, eine internationale volkshygienische Forderung unserer Zeit" gehalten. Es waren folgende Leitsätze aufgestellt:

1. Die Karies der Zähne hat unter allen Volkskrankheiten die grösste

Verbreitung, wie die statistischen Untersuchungen von Schulkindern und Soldaten beweisen.

2. Die körperliche und geistige Entwicklung der Kinder wird durch sie geschädigt, die allgemeine Volksgesundheit herabgesetzt.

3. Die Bekämpfung dieser Missstände ist nur möglich durch die Einführung von Zahnärzten in Schule und Heer.

4. Deshalb müssen in allen Ländern von den Stadtverwaltungen städtische Schulzahnkliniken errichtet werden.

5. Die Kosten sind im Verhältnis zu dem damit gestifteten Nutzen nur gering.

Der Koreferent Regierungsrat Beigeordneter Dominikus sagte am Schluss seines Vortrages: "In dem Augenblick, wo ein gemeingefährlicher Uebelstand in einem solchen Umfang aufgedeckt wird, wie dies bei der Zahnkariees der Fall ist, darf weder bei Schulmännern, noch Aerzten, noch Verwaltungsbeamten ein Zweifel darüber bestehen, dass die öffentlichen Behörden jedes in ihren Händen befindliche Mittel zur Bekämpfung ergreifen müssen. Eine solche Handhabe haben wir in der obligatorischen Volksschule. Die Angliederung der zahnpflegerischen Bestrebungen an die Schule ist darum ebenso natürlich wie berechtigt und praktisch. An sie hat sich dann zeitlich und ebenso organisch die weitere behördliche Fürsorge für die Zahnpflege der Minderbemittelten in den Organisationen unserer deutschen sozialen Versicherungseinrichtungen (Kranken- und Invalidenversicherung) anzuschliessen."

Und so werden Sie hoffentlich mit mir übereinstimmen in der Schlussforderung, die ich gemeinsam mit dem Herrn Referenten Ihnen hiermit als Antrag an den Congress vorlege:

Der Congress möge erklären:

"Eine behördlich organisierte, auch den Unbemittelten zugängliche Zahnpflege für das Volk ist notwendig und auf dem Wege der städtischen Schulzahnkliniken mit unentgeltlicher Behandlung, sowie anschliessend an die deutschen sozialen Versicherungseinrichtungen durchführbar."

Dieser Antrag wurde nach eingehender Discussion in der Gruppe E "Krankheiten und ärztlicher Dienst in der Schule" angenommen, in der Plenarsitzung verlesen und dem zweiten Internationalen Congress in London, 1907, zur Weiterbehandlung überwiesen.

Der Zeitpunkt ist nun gekommen. Die Mitglieder des Congresses werden fragen: Was ist in den verflossenen drei Jahren für oder gegen den Antrag geschehen? Wie soll derselbe jetzt weiter behandelt werden?

Seither ist die Zahnbehandlung der Schulkinder bereits eingeführt oder soll eingeführt werden in 33 deutschen Städten und in 15 Städten des Auslandes. Diese Tatsache spricht für die Annahme des Antrages, denn er ist dadurch zum Teil schon verwirklicht und in die Tat umgesetzt worden. Das Interesse für die Schulzahnpflege ist namentlich im letzten Jahr bei den Behörden gewachsen, wie, um aus meiner Erfahrung zu sprechen, die grosse Zahl der Anfragen und Gesuche in der städtischen Schulzahnklinik zu Strassburg zeigt. Allerdings liegt es auf der Hand, dass derartige Anfragen gerade nach Strassburg gerichtet werden, da unsere Schulzahnklinik bekanntlich die erste ist, welche aus städtischer und privater Initiative herausgegründet wurde. Eine kurze Skizierung ihrer Entwickelung erscheint deshalb an dieser Stelle angezeigt.

Solange die Poliklinik für Zahnkrankheiten an der Kaiser Wilhelms Universität besteht, oder vielmehr solange überhaupt Unterricht in der

Zahnheilkunde in Strassburg erteilt wird, und das geschieht seit dem Jahre 1885, sind arme Volksschulkinder und Soldaten stets auch unentgeltlich konservativ behandelt worden. Eine regelmässige Untersuchung der Kinder findet statt seit dem Jahre 1897. Zwei Jahre lang wurden sie klassenweise in die Klinik geführt. Da indessen die Räumlichkeiten sich für diesen Zweck nicht eigneten, wurde in der Folgezeit die Untersuchung in den Schulen selbst vorgenommen. Das geschah durch einen älteren Studenten, welcher eine jährliche Vergütung dafür erhielt. Dass diese Einrichtung nicht einwandsfrei war, wusste niemand besser als ich selber, aber vorderhand liess sich eben nicht mehr erreichen, da es an Mitteln fehlte. Zwei Jahre dauerte dieser Zustand, der nach und nach unerträglich wurde. Deshalb setzte ich alle Hebel in Bewegung, um die Errichtung einer städtischen Schulzahnklinik zu erlangen. Dank dem Entgegenkommen des Bürgermeisters der Stadt Strassburg und des Gemeinderates konnte denn auch am 15. Oktober 1902 die erste städtische Schulzahnklinik in Deutschland eröffnet werden. Es war nicht leicht die zahnärztliche Behandlung der Schulkinder einzuführen, denn viele Faktoren mussten dabei berücksichtigt werden: Die Furcht der Kinder, das Misstrauen der Eltern, die Interessen des Unterrichts, die Führung der Kleinen u.s.w.

Diese Faktoren verbunden mit der rationell-systematischen Durchführung einer konservativen Behandlung erforderten die volle Tätigkeit wissenschaftlich gebildeter, von der Stadt angestellter Schulzahnärzte. Wie sehr diese Tätigkeit dem Bedürfnis der Allgemeinheit entgegenkam zeigt nachfolgende statistische Aufstellung.

Von Strassburger Volksschulkindern inkl. Kleinkinderschule waren zur unentgeltlichen Behandlung berechtigt im Jahre .

1903	17119	Kinder.
1904	17054	,,
1905	18073	,,
1906	18607	,,

Von diesen wurden .

Kinder	untersucht	behandelt	mit Füllungen	mit Extraktionen
im 1. Jahr ...	5343 ...	2666 ...	699 ...	2912
im 2. Jahr ...	6900 ...	4967 ...	4832 ...	6530
im 3. Jahr ...	4372 ...	6828 ...	7065 ...	7985
im 4. Jahr ...	834 ...	7491 ...	8340 ...	8552

Die Kosten betrugen:

1902.	1903.	1904.	1905.	1906.	1907.
2300 M. ...	2750 M. ...	5430 M. ...	6700 M. ...	8550 M. ...	9000 M.

Diese Zahlen beweisen, dass mit geringen Summen verhältnismässig viel erreicht worden ist. Aus der Abnahme der Untersuchungen allein, aus der Zunahme der Füllungen geht deutlich hervor, wie immer mehr den Kindern bezw. den Eltern das Verständnis für die Bedeutung einer rationellen Zahnpflege aufging.

Zwei äusserst wichtige Einführungen in Strassburg sind zu erwähnen: erstens die obligatorische Behandlung der Kinder von 3–6 Jahren, welche die Kleinkinderschule besuchen, und dann die Bestimmung, dass kein Kind in die Ferienkolonie kommt ohne Bescheinigung der Schulzahnklinik über einen vollkommen gesunden Mund. Wie wichtig bereits die

Behandlung in den Kleinkinderschulen ist, geht aus den vorjährigen Untersuchungen der Klinik hervor. Bei 2269 Kindern von 3–6 Jahren fanden sich 9427 kranke Zähne, von denen 1655 schon gangränös zerfallen waren. 4886 Kinder haben im Berichtsjahr die Klinik wegen Schmerzen aufgesucht, mehr als die Hälfte aller Kinder, die überhaupt in die Klinik kamen. Auch auf die 8 Vororte Strassburgs hat sich die segensreiche Tätigkeit der Schulzahnklinik erstreckt.

Wichtig ist es zu hören, welche Erfahrungen die Lehrpersonen mit der Schulzahnklinik gemacht haben. Der kaiserliche Kreisschulinspektor Motz hat eine Umfrage in diesem Sinne an alle Lehrer und Lehrerinnen des Stadtkreises Strassburg gerichtet und hat diese Berichte zur Verfügung gestellt. Die überwiegende Mehrzahl derselben lautet günstig, einen davon gebe ich hier wieder:

Schule Gliesberg.

Erfahrungen betreffend die Einrichtung der Schulzahnklinik.

1. Die Schulversäumnisse, die durch Zahnschmerzen veranlasst wurden, sind bedeutend zurückgegangen.

2. Dementsprechend haben sich auch die Leistungen solcher Schüler gehoben.

3. Der allgemeine Gesundheitszustand solcher Schüler, die öfters an Zahnschmerzen litten, hat sich infolge zahnärztlicher Behandlung entschieden gebessert.

4. Durch den Besuch der Klinik wurde nur wenige Schulzeit versäumt, da die meisten Kinder die Klinik grösstenteils ausserhalb der Schulzeit besuchten.

5. Die Lehrpersonen stehen der Einrichtung der Schulzahnklinik sympatisch gegenüber. Anders denken sie über die Ferienkolonien. Durch eine mehrwöchentliche Unterrichtsversäumnis kommen die Kinder im Lernen zu weit zurück, und da es gewöhnlich auch geistig zurückgebliebene Kinder sind, die ausgesendet werden, fällt es ausserordentlich schwer, sie nachzubringen. Vielfach wurde auch bemerkt, dass die gesundheitsfördernde Wirkung der Aussendung durch die Einstellung der Kinder in die alten Verhältnisse gar bald wieder schwand.

6. Es wird wohl nicht nötig sein, dass der Schulzahnarzt die Klassen öfters besucht. Den Kindern ist die Einrichtung zur Genüge bekannt, und wenn sie schadhafte Zähne haben, besuchen sie schon aus eigenem Antriebe oder auf Rat der Lehrpersonen und Mitschüler die Klinik.

7. Die Erfahrung hat bestätigt, dass der Unterricht über Zahnpflege sehr notwendig und nützlich ist; auch sind die Kinder dabei ganz Auge und Ohr, da bei diesem Unterricht ein selbsttätiges Interesse vorwaltet.

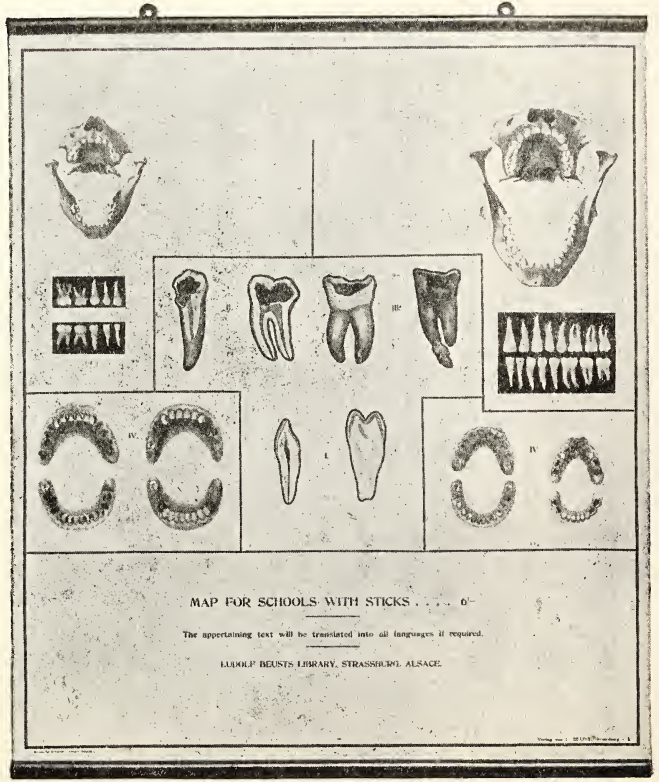
8. Die Kinder lassen sich gern vom Zahnarzt behandeln. Die Eltern haben im Grossen und Ganzen nichts gegen die Behandlung ihrer Kinder durch den Schulzahnarzt einzuwenden. Viele sprechen sich anerkennend über die Einrichtung aus.

Der Hauptlehrer R———.

Strassburg, den 23. April 1907.

Das Beispiel Strassburgs wurde vorbildlich für andere Städte, die zum Teil allen Anforderungen der Neuzeit entsprechende Schulzahnkliniken errichteten. Aber das genügt nicht.

GESUNDE UND KRANKE ZÄHNE.
Wandtafel für Schule von Professor Dr. med. Ernst BESSER
und Regierungs- und Schulrat Dr. Bruno SCHILLER in Strassburg i. Els.
20 Milchzähne:
32 bleibende Zähne:
Kranke Zähne · kranker Mund · kranker Magen · kranker Körper.
I. An jedem Zahn unterscheidet man Krone, Hals u. Wurzel.
Das Zahnbein ist die Grundsubstanz des Zahnes.
Der Schmelz bedeckt u. schützt die Krone.
Das Zement umkleidet die Wurzel.
Der Wurzelkanal enthält den Nerv u. das Zahnmark.
Das Zahnmark besteht aus Bindegewebe, Nerven, Blutgefässen und ist das Ernährungsorgan des Zahnes.
II. Ein hohler Zahn schmerzt noch nicht, solange das Loch nur klein ist.
Wird der hohle Zahn nicht rechtzeitig behandelt, entzündet sich das Zahnmark, dadurch entstehen „Zahnschmerzen".
Es ist wichtig, jeden kranken Zahn vom Zahnarzt behandeln zu lassen, ehe das Loch zu gross wird. Je früher der Zahn behandelt wird, um so weniger schmerzhaft ist die Behandlung, um so dauerhafter ist die Füllung.
III. Das entzündete Zahnmark beginnt zu eitern. Aus der Eiterung entwickelt sich Fäulnis.
Der „Nerv" stirbt ab.
Die Fäulnis entzündet die Wurzelhaut. Auch diese beginnt zu eitern. Es entsteht die „geschwollene Backe". Der kranke Zahn muss unter unerträglichen Schmerzen ausgezogen werden.
IV. Es ist wichtig, dass jedes Kind von frühester Jugend an seine Zähne
1) täglich gebraucht,
2) sorgfältig bürstet,
3) regelmässig untersuchen und
4) rechtzeitig behandeln lässt.
Der kranke Mund ist eine Gefahr für die eigene Gesundheit und die der Mitmenschen!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Das Endziel der im Fluss befindlichen Bestrebungen muss sein, dass Schulzahnkliniken nicht die Ausnahme sondern die Regel bilden. Dieses Ziel zu erstreben möge eine der Aufgaben des Internationalen Congresses sein.

Als ein Mittel, dieses Ziel zu erreichen, zeige ich Ihnen hier eine Wandtafel, die ich zusammen mit dem Regierungs- und Schulrat Dr. Stehle herausgegeben habe, mit der Absicht, dieselbe in allen Sprachen in die Schulen aller Länder einzuführen. Die Aufklärung der Kinder in der Schule ist der erste Schritt zu erfolgreichem Betrieb einer Schulzahnklinik, und ist der einzige Weg, um allmählich auch die weiteren Kreise über die Bedeutung der Zahn- und Mundpflege für die Gesundheit des ganzen Körpers aufzuklären. Diesen Weg werden wir gehen.

Dr. Friedrich Stocker (Lucerne): Der Gedanke der Errichtung von Schulzahnkliniken ist nach zwei Seiten hin von eminentem Wert. Einmal stellt er den ersten Anlauf dar, dem stets wiederholten Postulate gerecht zu werden, dass der *effektive* Nutzen für Kind, Eltern, Schule und Staat der Hauptzweck alles schulärztlichen Handelns sein soll. Wir sind durch die Zeit der blossen Zählungen von Fehlern und Gebrechen der Schulkinder hindurch; der schulärztliche Dienst soll, wie Sanit. Rat. Dr. Cuntz diesen Morgen gesagt hat, nicht mehr bloss spezialistischen Liebhabereien dienen. Das Volk will sozialen Nutzen sehen und auch die Behörden. Solcher Nutzen erwächst durch Prof. Jessens Schulzahnklinik auf dem Gebiete der Zahnheilkunde.

Zweitens wird durch Jessens Gedanken übergeleitet auf die *allgemeine Schulpoliklinik*, welche auch Ohren-, Nasen-, Augen-, Hautleiden etc. zum Gegenstand unentgeltlicher Behandlung macht. Hiedurch wird die Lücke im schulärztlichen Betriebe ausgefüllt, welche dadurch stets gerissen wird, dass die Eltern aus Unkenntniss, bösem Willen, meistens aber aus Dürftigkeit, dem Rate der Schulärzte nicht folgen, und ihre Kinder nicht behandeln lassen. Prof. Dr. Jessen gebührt das grosse Verdienst als der Erste die Frage der individuellen sanitären Fürsorge des Schulkindes am richtigen Ort angefasst zu haben. Mit dem Statistiktreiben, mit dem Zählen der gesunden und kranken Zähne der Schulkinder war die ärztliche Fürsorge nicht erschöpft. Die Mehrzahl der Volksschulkinder gehört einer Klasse an, welche sich den "Luxus" eines Zahnarztes nicht leisten kann oder will. Die Schulzahnklinik tritt da in die Lücke indem die Gemeinde für Gratisbehandlung defekter Gebisse sorgt. Durch die Fürsorge für die Kinder werden die Eltern zur Zahnhygiene erzogen. Prof. Dr. Jessens Thesen sollen vom Kongress kräftig unterstützt werden.

Der Gedanke Jessens hat aber indirekt einen weitern grossen Nutzen gestiftet. Mit der Schul-*Zahn*klinik wird übergeleitet zur *allgemeinen Schulpoliklinik*. Ausser den Zähnen sind es die Sinnesorgane des Gesichtes und Gehörs, die Haut, etc. welche trotz schulärztlicher Mahnungen von den Eltern der Schulkinder nicht der nötigen Pflege entgegengeführt werden. Auch hier soll von Gemeinde wegen für Gratisbesorgung von Brillen, Entfernung von Ohrpfröpfen, Hautekzemen und Parasiten etc. Einrichtung getroffen werden.

Die Vaterstadt des Sprechenden, Luzern, hat in diesem Jahre eine allgemeine- und eine Zahnschulpoliklinik errichtet.

Dr. Wehrhahn (Stadtschulrat, Hannover): Meiner Ansicht nach ist keine Massnahme auf dem werten Gebiete der Schulhygiene so geeignet, auf die Gesundung der Schulkinder in weitestem Umfange einzuwirken, wie die von Herrn Prof. Dr. Jessen vorgeschlagene Schulzahnklinik. Die Verdienste des Herrn Prof. sind hier bereits in warmen Worten gewürdigt worden; als Vertreter des Verbandes der Hilfsschulen Deutschlands möchte ich sie noch besonders kräftig unterstreichen.

Bekanntlich leiden die meisten *Hilfs* schulkinder an *Sprach*gebrechen, und in vielen Fällen sind Mängel des Gebisses die Ursache hiervon. Dazu kommt noch der Uebelstand, dass die Kinder in der Regel nur *einen* am

Wasserhahn angeketteten Becker benutzen. Wie gross sind die Ansteckungsgefahren, welche auf diese Weise hervorgerufen werden! Also gerade in den Hilfsschulen muss auf eine durchgreifende Zahnpflege der grösste Wert gelegt werden.

Im Einzelnen möchte ich mir noch folgende Bemerkungen gestatten. Herr Prof. Jessen hält mit Recht die obligatorische Behandlung der Kinder von 3–6 Jahren für äusserst wichtig; aber ein Schulzwang für diese Kinder besteht meines Wissens nur in Elsass-Lothringen, leider aber nicht in den übrigen deutschen Staaten.

Wenn ein Hauptlehrer in Strassburg berichtet hat, dass die Lehrer den Ferienkolonien *nicht* sympathisch gegenüber ständen, weil durch eine mehrwochentliche *Unterrichts*versäumniss die Kinder im Lernen zu weit zurück kämen, so scheint mir insofern ein Widerspruch vorzuliegen, als in den *Ferien* doch kein Unterricht erteilt wird.

Herrn Prof. Dr. Jessen nochmals meinen herzlichsten Dank für seine unermüdliche und opferbereste Tätigkeit auf dem Gebiete der Schulzahnpflege!

MEDICAL SUPERVISION OF INFANT SCHOOLS.

By Dr. Marion Hunter, L.C.C. Medical Staff (Education), London.

Medical inspection combined with power to compel parents to remedy the ills of their children should be the first steps to improve the natural physique. We neglect curable conditions in childhood to treat them later in asylums, infirmaries, and hospitals. Compulsory, organised, universal medical inspection needed. School visited once a week. Education of mothers through medical inspection of infant schools. Absolute necessity of dental treatment in school. Experience shows that the medical inspector should never take anything for granted, but should see all and test all. In towns school attendance should not be delayed at the younger ages in the infant schools. Many conditions are in a most remediable stage, notably tubercular bone disease.

LES TENDANCES VERS L'ORGANISATION RATIONNELLE DE L'ENSEIGNEMENT PUBLIC.

Par V. H. Friedel, Ph.D., LL.D., Paris.

(*Extrait.*)

Jamais période n'a été plus féconde en problèmes et en réformes scolaires que la nôtre. Peut-on démêler dès maintenant quelle sera l'école de demain? quelle sera sa pédagogie et quel sera son rôle social? Je le crois. L'évolution passée et l'état actuel des organisations scolaires; les expérience antérieures et les tendances actuelles de la pédagogie; enfin, la

comparaison des systèmes scolaires étrangers qui diffèrent peu d'un pays à l'autre et qui, après avoir uni dans la civilisation mondiale tous les grands pays, reçoivent maintenant de cette même civilisation des impulsions similaires : voilà des éléments qui, à mon avis, permettent un pronostic assez sûr, si on se borne à l'appliquer à ce qui sera demain, non pas à ce qui pourra se faire dans un avenir plus lointain.

Il ne s'agit pas ici d'organisations de détail, telles que, par exemple, la gratuité de l'enseignement à tous les degrés, ou la coéducation des sexes. Bien que l'une et l'autre soient entrées dans la réalité, dans divers pays, leur généralisation ne sera pas pour demain ni peut-être pour après demain. L'organisation fondamentale de l'école, le système scolaire proprement dit est ce qu'il importe avant tout de fixer. Or, l'école qui a le plus préoccupé les sociétés, parce qu'elle les influence le plus, c'est l'école dite primaire et secondaire, celle qui commence et qui détermine l'instruction et l'éducation de l'enfant et de l'adolescent. Les universités reçoivent des adultes dont l'instruction et l'éducation sont sinon faites, du moins déterminées. Elles ne sont pas—pour la généralité, pas même pour une majorité des individus—elles ne doivent pas être le " couronnement " de l'enseignement. Il n'y a aucune nécessité de les concevoir comme faisant partie intégrante d'un système d'enseignement public de la jeunesse. Il y a d'autres raisons pour lesquelles je n'ai pas besoin de m'en occuper ici autrement qu'en passant.

Les questions auxquelles il faut, je crois, songer dès maintenant, sont donc les suivantes :

1. Quel sera demain, c'est-à-dire dans un avenir rapproché le système d'enseignement primaire et secondaire le plus rationnel ?
2. Quelle en sera la pédagogie et, par conséquent, le rôle social ?

Aujourd'hui une muraille chinoise sépare en deux " ordres " l'instruction de la jeunesse : d'un côté l'enseignement primaire, l'école du peuple, la *Volksschule*, de l'autre l'enseignement secondaire, l'école des " bourgeois." Entre les deux aucune porte de communication, aucun lien entre le personnel enseignant, aucune harmonie dans les programmes et méthodes. On ne dirait pas que les deux travaillent à la tâche commune de l'instruction et de l'éducation des citoyens.

Cet état de choses est commun à tous les pays de civilisation ancienne ; il est la conséquence de l'évolution historique des deux ordres d'enseignement. Mon intention n'est pas de retracer ici cette évolution.[1]

Il me suffit de constater :

1. Que le principe de l'école primaire et secondaire comme service public est à peu près universellement admis[2] ;
2. Que malgré cela très peu de pays sont arrivés à réunir en un seul système organique ces deux ordres d'enseignement.

[1] Voir *Revue Pédagogique* (Paris, Delagrave), 1908.

[2] L'Angleterre est peut-être le seul grand pays où l'enseignement secondaire ne soit pas encore reconnu comme un service public Les grandes *public schools*, malgré leurs noms, se tiennent jalousement en dehors du Board of Education, c'est-à-dire de l'Administration. Plusieurs municipalités ayant osé attribuer des deniers publics à leur enseignement primaire supérieur et secondaire se sont vu donner tort par le Banc de la Reine,—c'est le fameux procès Cockerton—et cette décision, strictement juridique, puisque seul l'enseignement élémentaire pouvait être mis à la charge des pouvoirs publics, a été la cause que les conservateurs de 1902 ont affirmé, pour la première fois dans l'histoire de l'Angleterre, que l'enseignement tout entier, y compris par conséquent le secondaire, était une institution publique.

Les gouvernements continuent à traiter le primaire et le secondaire comme deux mondes à part, mais des tendances certaines se sont manifestées vers l'union. Ces tendances puisent leur force en premier lieu dans l'influence constante et directe de la vie nationale sur l'école. Deux exemples suffiront.

En Allemagne, on a fortifié l'école primaire pour des raisons nationales, ou plutôt nationalistes. C'est l'instituteur allemand, disait-on, qui a vaincu à Sadowa et à Sedan, et c'est l'instituteur qui devra préparer les forces vives de la grandeur politique et économique de l'Empire. Forts de ce rôle important, les instituteurs allemands réclament l'unité de l'école primaire et secondaire—l'unité administrative, l'unité d'action dans l'education et l'instruction, l'unité morale et sociale du corps enseignant. C'est le programme d'un mouvement qui s'appelle l'*Einheitsschule*, l'école unique.

Puisque la concurrence commerciale et industrielle exige une instruction plus scientifique à l'école primaire ; puisqu'il faut une instruction universitaire pour connaître les méthodes scientifiques et, en même temps, pour conquérir les fonctions importantes et l'égalité morale et sociale avec les autres serviteurs de l'Etat ; puisqu'enfin le futur instituteur doit travailler autant et à peu de choses près les mêmes matières qu'un bachelier de l'enseignement secondaire moderne, les instituteurs allemands demandent à être préparés à leurs fonctions par les Universités, tout comme leurs collègues secondaires. Avec l'esprit méthodique qui leur est propre, ils pensent que le rapprochement du primaire et du secondaire se fera par le personnel et par l'unité des méthodes dans l'enseignement avant de se faire par des lois. N'ont-ils pas déjà l'école primaire ordinaire *commune et obligatoire* pour tous les enfants sans distinction de classe sociale ?

En France, l'enseignement primaire et primaire supérieur ont été réorganisés dès que la troisième République fut définitivement établie. On connait l'œuvre magnifique des Paul Bert et des Jules Ferry, et son grand rôle dans le relèvement du pays après les désastres de 1870. L'enseignement primaire français brave toute comparaison ; il a même servi de modèle à plus d'un pays. Quoi de plus naturel que, dans une démocratie, l'enseignement démocratique par excellence cherche à être lui-même, à secouer la tutelle exercée sur lui par le secondaire, à faire cesser, enfin, la concurrence de cet enseignement " bourgeois " qui attire la clientèle aisée dans les classes élémentaires des lycées ?

C'est la tendance *autonomiste*. Elle a trouvé son expression typique dans un appel à la constitution d'un *Bloc primaire* en vue de la revendication de l'*autonomie primaire*, appel qui a été lancé par l'Association amicale des professeurs d'école normale de France, dans un manifeste, le 14 décembre 1904.

À cette tendance s'oppose une autre, non moins démocratique, qui cherche à renouer entre les deux ordres les liens organiques qu'avaient préparés les hommes de la Révolution. On pourrait l'appeler la tendance scientifique. Elle n'est pas l'œuvre d'une doctrine, mais elle s'appuie sur les réalités.

Les deux tendances se sont heurtées naguère, lorsque l'honorable M. Massé a repris à son compte, dans deux rapports budgétaires (1905–1906), la proposition de supprimer les écoles normales et de préparer les

instituteurs dans les écoles secondaires, et—ajoutait M. Aulard—dans les Universités.

Aucune de ces deux tendances n'a abouti. Ce pendant est intervenue la loi du 31 mai 1902 sur l'enseignement secondaire.

Dès le premier article du décret du 31 mai, 1902, nous apprenons que "l'enseignement secondaire est *coordonné* à l'enseignement primaire de manière à faire suite à un cours d'études primaires d'une durée normale de quatre années."

C'est l'acheminement vers l'école primaire commune. En attendant que la coordination devienne un fait, il y a là un élément solide de jurisprudence actuelle pour construire l'école de demain telle qu'elle sera un jour en France.

Il semble donc que l'*école primaire commune* à tous les enfants sans distinction de classe sociale sera la pierre angulaire de l'école de demain.

Certains pays ont déjà réalisé cette union, d'autres s'y acheminent lentement, mais inévitablement. Les Etats-Unis d'Amérique, les pays scandinaves, la Suisse y sont venus plus vite et de plus près que l'Allemagne et la France. Il y a là une évolution qui est due aux conditions politiques et économiques de chaque pays. N'est-il pas naturel, je dirais volontiers fatal, que ces conditions continuent à influencer le développement futur des institutions scolaires ?

La force des conditions politiques, économiques et sociales primera toutes les autres considérations. Car, elle se trouve d'accord avec les progrès de la science. Or, ces progrès ont provoqué des tendances pédagogiques qu'on peut réunir sous le nom d'*hygiène scolaire.*

Hier encore la mission de l'école était de communiquer des connaissances à la jeunesse : connaissances limitées à "l'indispensable" pour ceux qui n'avaient ni le temps, ni les moyens d'en acquérir de plus complètes ; connaissances plus variées, plus spéciales—plus inutiles parfois,—pour les privilégiés. De nos jours, l'école est la vraie base de toute notre organisation sociale. Qu'il s'agisse, en effet, des rapports entre hommes ou entre peuples, de l'exercice des droits et des devoirs civiques et politiques, de la défense nationale, de la santé publique, du commerce et de l'industrie, de la science pure et appliquée, bref de tout ce qui est la vie des hommes et des nations, c'est à l'école qu'on demande d'y préparer les individus. Ces multiples exigences ont envahi l'école avec une telle rapidité—la rapidité du siècle des chemins de fer et du télégraphe—que la pédagogie traditionnelle se trouva débordée. Ce fut, au point de vue de l'enseignement des connaissances, le tohu-bohu des procédés encyclopédiques, du gavage, du surmenage, du pédantisme rebutant. Quel remède n'a-t-on pas essayé ! Maîtres et élèves en souffraient. Fallait-il réduire les programmes et les heures de classe ? On risquait de ne plus donner le degré d'instruction qu'exige l'activité moderne. Puis, on changeait de méthodes sans tenir compte du tort que causaient ces bouleversements. On pataugeait.[1] On s'obstinait à vouloir déterminer la quantité des connaissances que telle ou telle école devait offrir aux élèves, comme si c'étaient choses à mesurer au boisseau. Qui sait de quelles connaissances—qualité et quantité—il aura besoin dans le cours de sa vie ?

[1] Il est curieux qu'il ait fallu l'épouvantail de la tuberculose, etc., pour nous rappeler cet ancien adage : *Mens sana in corpore sano.*

L'organisation de l'école qui se forme sous nos yeux ainsi que les tendances pédagogiques qui se font jour, nous permettent de poser le problème comme il convient qu'il soit posé, et peut-être de le résoudre. Très nettement le but de l'école apparaît sous sa triple face : *veiller au physique, former le moral, développer les facultés intellectuelles :* tout cela dans les quelques heures que le maître réunit les enfants autour de lui. Ce but ne laisse pas d'hésitation sur les moyens qu'emploiera l'école de demain. Parlons d'abord de l'hygiène physique.

Il y a un besoin qui prime tous les autres dans toute société humaine quelle qu'elle soit, c'est le besoin instinctif et irrésistible de la conservation. Ce besoin s'impose aux sociétés avec la force de la légitime défense contre les dangers que leur créent les non-valeurs physiques, intellectuelles et morales, autrement dit les infirmes, les ignorants, les criminels. La suppression pure et simple des infirmes, le servage impitoyable des ignorants, le châtiment brutal de ceux qui contreviennent aux lois établies, sont des moyens de défense sociale primitive. Les sociétés religieuses, préoccupées avant tout de l'âme, emploient des moyens d'un ordre presque exclusivement spirituel ; aussi ne conviennent-ils que partiellement aux besoins positifs d'une société comme la nôtre. L'avènement de la science veut, en effet, prévenir la dégénérescence physique en préservant l'enfance ; l'assistance charitable aux malades ne lui suffit plus. Elle veut instruire non point en vue de l'intelligence et de la conscience religieuses qui engendrent surtout des vertus passives, mais en vue de la formation rationnelle des facultés intellectuelles, source d'une intelligence active et productive. La raison doit devenir la déterminante de tous les actes de l'individu. Grâce à ses facultés bien développées, l'homme saura ne pas être inutile pour la société. C'est dans ce sens que la société moderne utilise l'école de tous, que la société chrétienne avait conçue en vue de la " cure d'âme." Le système scolaire qui s'annonce comme devant être celui de demain, répondra-t-il à ce que lui demande notre société scientifique ? Cela paraît très probable.

D'abord, l'école de demain sera outillée pour réduire au minimum les non-valeurs physiques. Il est souvent trop tard quand il s'agit de guérir ; il est plus sûr de prévenir. Ai-je besoin de rappeler les constatations unanimes faites récemment par des médecins de tous les pays sur des centaines de milliers d'enfants ? On peut prévenir les maladies de tous les organes, redresser les tares physiques acquises ou héréditaires, combattre efficacement des fléaux comme la tuberculose et les maux de l'alcoolisme chez les enfants, à l'école qui les réunit. Les premiers, en France, nous avons proclamé la nécessité de préserver l'enfance. Mais d'autres pays nous ont devancés par la mise en pratique de ce principe autant en ce qui concerne les institutions destinées à recevoir les tout petits abandonnés ou négligés que par l'organisation d'un corps de médecins scolaires. L'examen médical initial et la surveillance constante de l'enfance écolière sont, tout comme la gratuité et la laïcité, un corollaire de la scolarité obligatoire. L'enfant y a droit autant, sinon plus, que le conscrit et le soldat. Et la société a intérêt à lui créer un corps médical spécial au même titre qu'elle a reconnu le besoin d'un corps spécial de médecine militaire. Avec cette sauvegarde, et grâce à des " maternelles " intelligemment comprises, à des colonies de vacances et des écoles de forêt et de montagne, à des cantines scolaires, à des classes spéciales

pour enfants débiles[1] ou passagèrement affaiblis, enfin par l'entretien perpétuel des forces à l'aide de la gymnastique et des jeux—institutions qui toutes existent et fonctionnent, à des degrés différents dans les divers pays—l'école de demain préparera à la société des êtres robustes, capables d'être des valeurs sociales, ne fût-ce que par le simple usage de leurs forces physiques.

Mais l'avantage sera plus immédiat et plus grand. Personne ne conteste plus que le "cancre" est presque toujours un enfant mal portant. L'ère de la "pédagogie de la férule" est close. On a compris que le travail du maître produit des résultats meilleurs, si on lui envoie en classe des élèves dispos.

Sous l'influence prédominante du principe de la santé physique avant tout, qui est celui de l'école de demain, la pédagogie scolaire proprement dite, et l'instruction en particulier, gagneront tout ce qui leur manque actuellement : la stabilité dans le but à atteindre et dans les méthodes, l'intensité et l'étendue.

Mais avant d'en venir à cette pédagogie future, rappelons-nous que le système scolaire préconisé est celui de l'école primaire commune à tous les enfants.

Or, ce que beaucoup de parents craignent le plus dans l'école primaire —et non sans raison—c'est la promiscuité au point de vue hygiénique. En effet, l'école de demain impose un très impérieux devoir aux établissements primaires et à leur personnel : il sera indispensable que les locaux et l'état sanitaire des élèves offrent aux parents le maximum de sécurité hygiénique. L'exemple est donné précisément par les pays qui ont adopté l'école primaire commune. L'institution des médecins scolaires se propage rapidement en Allemagne et en Suisse. La "Ligue française d'hygiène scolaire," fondée sous le nom de "Ligue des médecins et des familles," il y a quelques années à peine, travaille dans le même sens. L'intérêt qui s'attache à ces efforts est trop immédiat, en présence des dangers croissants de la tuberculose, de l'alcoolisme, de la criminalité, pour qu'ils n'aboutissent pas. Aux instituteurs de seconder le mouvement de toutes leurs forces et de hâter le moment où sera écarté de leurs écoles le danger d'une promiscuité hygiénique mal contrôlée.

On peut rattacher ici à l'école de demain une institution qui sera pour beaucoup dans l'amélioration sanitaire de nos écoles primaires, et qui, par conséquent, mérite la plus grande sollicitude, plus particulièrement de la part des institutrices : c'est l'école maternelle. "Εὕρηκα," s'écria Frœbel, après avoir longtemps cherché un nom pour l'institution de la première enfance, elle s'appellera *Kindergarten*, c'est-à-dire jardin d'enfants. Le nom est tout un programme. Ceux qui connaissent les écoles maternelles savent que les garderies, les classes enfantines, les écoles maternelles ne ressemblent guère à des jardins. Or, partout, surtout en Amérique, on cherche en ce moment la forme appropriée du

[1] M. Léon Bourgeois, qui préside la Commission ministérielle, instituée pour réglementer l'éducation des enfants arriérés et anormaux, a inauguré à Paris, le 17 mars 1907, la première école de ce genre en France En Allemagne et en Suisse, les "Nachhilfsschulen" et les "Hilfsklassen" rendent depuis longtemps de services signalés. Notons que c'est en France, à l'hospice de Bicêtre, que pour la première fois des médecins ont prouvé la possibilité de "faire quelque chose" même des "anormaux." Bien entendu, les "incurables" seront toujours traités à part. Leur place est dans des hôpitaux-écoles. Les tuberculeux seront recueillis dans des "sanatoria-écoles," qu'après nous (Voir *Petit Journal* du 16 déc. 1906), le Dr. Grancher a recommandés, avec succès, au Conseil Municipal de Paris.

jardin d'enfants. Le but se précise. Il sera atteint—et ce ne sera pas pour un temps très éloigné—lorsque ces institutions seront des foyers pour les enfants qui n'en ont pas chez eux, des pépinières d'enfants bien portants, habitués à la propreté, sachant ce que d'ordinaire une bonne mère de famille apprend à ses enfants.

L'école primaire commune à tous les enfants exige donc à sa base une institution de la première enfance, qui devra être obligatoire pour tous les enfants abandonnés ou menacés de l'être. Elle fera tomber les préjugés contre l'école commune, et elle facilitera—soit dit en passant—l'application de l'obligation scolaire, en faisant aimer l'école par les enfants.

Passons à l'instruction proprement dite. La pédagogie de demain se rappelle, enfin, que le cerveau d'un enfant n'est pas une boîte vide dans laquelle on devra entasser des connaissances, mais un organe qu'il s'agit de développer par un entraînement rationnel et approprié. Il se connaissait fort peu en pédagogie celui qui a inventé cet euphémisme " orner l'esprit." Or, la discipline des facultés intellectuelles se fait à l'aide des connaissances acquises par la science, indiscutables et vraies pour tout le monde. La masse en est assez considérable : il en est de générales et de spéciales ; il en est qui sont fondamentales et que tout le monde doit posséder. C'est avec celles-ci qu'on commencera, en choisissant, pour en réduire d'avantage le cercle, celles qui dans un cerveau sachant " travailler " s'élargiront et se préciseront presque d'elles-mêmes, celles qui sont aussi les plus aptes à apprendre au cerveau à travailler avec justesse, à tout moment et quelle que soit la tâche que, dans le cours de sa vie, un individu aura le besoin ou le désir d'entreprendre. Un apprenti dans un métier quelconque ne voit jamais, durant son apprentissage, tous les travaux, variés à l'infini et compliqués, qu'il peut avoir à exécuter ou à imaginer quand il aura passé ouvrier-maître, créateur au lieu de simple manœuvre. Mais comme manœuvre, il aura appris à connaître la matière qu'il manipule et les manipulations toujours applicables à la matière. S'il y apporte l'intérêt, c'est-à-dire s'il aime son métier, rien ne l'empêchera de varier sa manière et de perfectionner les procédés selon les exigences de l'industrie de son temps, il progresse, il crée, il est valeur active. Il en est de même pour la culture des facultés intellectuelles. Les connaissances générales, raisonnablement graduées selon l'âge, constituent la matière sur laquelle et à l'aide de laquelle un esprit travaille. Le travail sera tel qu'il donne le savoir-faire et qu'en même temps il inspire de l'intérêt. Car, c'est l'intérêt à apprendre qu'il est nécessaire de susciter et de constamment nourrir. Tout le secret de la pédagogie scolaire est là. Le maître assez habile pour l'appliquer et largement cultivé peut aller, dans la communication des connaissances, aussi loin que le mène la curiosité de ses élèves, et point n'est besoin de craindre qu'il n'aille trop loin, puisque les élèves seront tous assez bien portants pour le suivre sans fatigue. Une chose est certaine, c'est que dans huit années de scolarité, à raison de 200–240 journées et de quatre heures par jour—c'est là un minimum pour des enfants bien portants—il est parfaitement possible de donner un stock appréciable de connaissances et de faits, et de montrer comment on les augmente et comment on les approfondit.[1] Tant mieux

[1] Le mouvement des bibliothèques scolaires et populaires a repris avec une vigueur remarquable partout, notamment aux États-Unis. Elles sont les meilleurs auxiliaries de la pédagogie qui se contentera d'apprendre aux individus à "savoir travailler." Voir M. Pellisson. *Les bibliothèques populaires à l'étranger et en France* (Paris, Impr. nat. 1905.—Publication du Musée Pédagogique, nouv. série, fasc. X.)

s'il y en a qui exerceront leurs facultés plus longtemps sous la direction d'un maître et sur une variété plus grande de matières.

Mais pour que l'entraînement de l'esprit soit, dans le temps le plus restreint, le plus rationnel et le plus intense chez la plus grande majorité possible d'élèves, il est essentiel que le travail du ou des maîtres soit logiquement coordonné. Cette coordination, l'école de demain la rend possible ; elle l'exige même.

Dans l'enseignement primaire, où le même maître enseigne d'ordinaire toutes les matières, fait toutes les leçons de la journée à tous les élèves, cette coordination est assez aisée. Dans l'enseignement primaire supérieur et dans l'enseignement secondaire, où plusieurs professeurs enseignent chacun sa spécialité, elle n'est pas impossible. Rien ne déroute une intelligence jeune, rien ne tue l'intérêt—si nécessaire pour faire apprendre et pour apprendre, je le répète—à un tel point que l'incohérence antiscientifique des leçons d'une matinée ou d'une après-midi. Je dis antiscientifique parce qu'il existe entre les matières elles-mêmes un lien scientifique qu'il est interdit désormais de ne pas faire sentir aux élèves, par exemple, entre la géographie et les sciences naturelles, entre l'histoire et la géographie, entre l'histoire et les langues, etc., etc. Mais pour que les élèves ne soient pas déroutés par le changement inévitable à la fois des matières et des professeurs, ceux-ci devront s'entendre sur la suite des classes et sur les méthodes qu'ils croiront devoir suivre. Et non pas seulement dans les leçons d'une classe—ce sera déjà un beau résultat—mais dans une série de classes, dans les diverses écoles qui constituent les systèmes primaire et secondaire, cette entente, cette coordination est, à l'aveu de tous, désirable. Elle évitera la perte de temps ; elle assurera l'attention et l'application des élèves, et procurera des résultats moins superficiels et moins passagers. Or, pour que la coordination se fasse, il faut que le même esprit scientifique, obtenu par une préparation analogue, unisse le personnel chargé de la réaliser, c'est-à-dire il ne faut plus que les uns, les primaires, pontifient dans le dogmatisme étroit des écoles normales, tandis que les autres, la minorité des secondaires, apprennent leur métier dans l'atmosphère large et libre des Universités. Les méthodes scientifiques semblent n'être applicables que dans un système bien coordonné. C'est donc le travail identique—de qualité—qui fera la coordination par le personnel.

De nouveau on est ramené à l'école primaire ou élémentaire commune, et à la coordination entre le secondaire et le primaire. Puisque des écoles maternelles bien organisées enverront à l'école élémentaire des enfants intellectuellement égaux à ceux dont les parents ont développé la première intelligence, le préjugé de la promiscuité intellectuelle ne peut plus être invoqué contre l'école commune. On ne saurait non plus faire valoir l'inconvénient très réel jusqu'ici de la perte de temps et de travail qu'éprouvait un élève de l'école primaire passant à l'école secondaire. Enfin, puisque dans la conception moderne tous les individus doivent avoir une chance égale à se préparer à la vie, maintiendra-t-on la cloison étanche entre le primaire et le secondaire, cause de bien de malentendus sociaux ? Le programme formera un tout, bien articulé et souple, dont les parties s'enchaîneront naturellement : l'hygiène intellectuelle des élèves y gagnera parce qu'il sera possible de réduire les révisions tropfréquentes, les raccords d'une classe et d'une école à l'autre, la précipitation et le contrôle irritants,

en un mot tous les inconvénients du surmenage et du désarroi. Jouissant tous d'une instruction donnée dans le même esprit, les élèves pourront l'utiliser ou l'approfondir, quel que soit le degré où ils auront dû ou voulu l'arrêter. Ils seront des hommes intelligents, sachant appliquer leur intelligence ; ils seront actifs et libres. Ayant emporté de l'école la vaillance physique en même temps qu'un pouvoir intellectuel, ils seront des valeurs sociales au premier chef.

L'organisation rationnelle et coordonnée de l'école de demain qui permet un pareil résultat, accomplit par là-même un travail éducatif considérable. C'est encore de l'hygiène scolaire : elle vise la santé morale et sociale des écoliers. Cette tache de l'école future s'est affirmée très vigoureusement de nos jours, et l'*éducation* fait maintenant partie intégrante des programmes scolaires.

Jusqu'à présent, seuls les maîtres primaires apprenaient "l'art de l'éducation." Les professeurs secondaires ne se croyaient chargés que de l'exercice de l'art d'enseigner, et cet art ils s'imaginaient sérieusement l'avoir acquis avec les connaissances qui en font l'objet. En France, les auteurs de la loi de 1902 sur l'enseignement secondaire ont insisté expressément sur le rôle d'éducateur qui incombe à tous les maîtres de la jeunesse. Un stage pédagogique a donc été imposé à tous les candidats au professorat secondaire. Lorsque ce stage sera aussi sérieux qu'il l'est déjà ailleurs, en Suisse, en Allemagne, etc., non seulement le lien de solidarité professionnelle entre le personnel primaire et secondaire apparaîtra plus nettement, mais le maître se rapprochera de plus en plus et des élèves et des familles. On sait combien ces rapprochements ont été préparés partout dans ces derniers temps. Ils sont indispensables à l'efficacité intégrale de l'école publique. L'influence sociale de l'école en dépend. C'est précisément en faisant profiter son enseignement de l'influence religieuse acquise, que la pédagogie congréganiste a longtemps contrecarré l'influence des éducateurs laïques. La leçon de cette concurrence a été comprise. Il n'est pas désirable que l'instituteur devienne un prêtre laïque et qu'il imite les procédés du prosélytisme de son rival ecclésiastique. Il suffit de trouver dans les programmes le temps nécessaire pour faire de l'éducation à l'école. Et on le trouvera. En France, on a introduit dans les programmes scolaires un enseignement qui a pour but l'éducation morale et civique. Cet enseignement complète les leçons d'éducation pour la vie individuelle et sociale que le maître doît dégager, chemin faisant, de l'enseignement des matières d'enseignement proprement dites. Cette innovation a été imitée, ce qui prouve qu'elle aura sa place dans l'école de demain. C'est en France aussi que de nombreuses œuvres auxiliaires et complémentaires, telles que les Petites A (sociétés amicales d'élèves), mutualités scolaires, etc., ont ouvert largement l'école aux courants de solidarité et de mutualité qui ont pénétré si rapidement la société moderne. L'école de demain est donc bien une préparation à la vie. A ce point de vue son rôle social est prépondérant. Et, répetons-le, qu'on ne craigne pas qu'il ne soit impossible de trouver, à l'école, pour cette préparation le temps que la vie moderne exige qu'on lui consacre, parallèlement à l'éducation physique et à la culture intellectuelle. Le commerce actif entre le maître et l'élève la rendra facile et efficace. La coordination des écoles aura pour conséquence d'y soumettre les élèves jusqu'à leur entrée dans la vie, sans qu'un changement de classe ou d'école vienne l'interrompre et l'annuler.

J'ai indiqué en grands traits la forme extérieure, si j'ose dire ainsi, que les tendances actuelles des réformes scolaires semblent donner à l'école de demain, sous la poussée des conditions politiques, économiques et sociales : ce sera une coordination rationnelle et harmonieuse des " écoles " existantes dites primaire et secondaire. En même temps, j'ai essayé de définir le but et les moyens que les progrès des sciences—surtout des sciences naturelles et sociales—assignent à la pédagogie : celle-ci sera également rationnelle, c'est-à-dire plus physiologique et réale que psychologique et idéale, en un mot conforme à la science. Et le rôle de l'hygiène scolaire consistera à dégager les données de la science et à les mettre à la portée de ceux à qui incombe plus particulièrement le devoir de faire des individus, des valeurs sociales—c'est-à-dire des parents, du personnel enseignant et des administrations scolaires.

TEETH OF CHILDREN OF MICHAEL FARADAY SCHOOL, WALWORTH.

By C. EDWARD WALLIS, M.R.C.S., L.R.C.P., L.D.S.

(Abstract.)

LAST year (1906) I was engaged for some time in making a systematic inspection of the mouths and teeth of the children in a L.C.C. elementary school (Michael Faraday School), this forming a part of the medical inspection? With a view to our results being, as far as possible, comparable, I followed the plan of examining the children in groups—not according to ages, but according to their years of birth, experience having shown that those born in certain years present marked physical differences from those born in the preceding or subsequent years. It may be mentioned that the children born in 1894 were shown in the medical investigation to be physically superior to those born in other years, and it will be of interest to note that that year was a " wet " year. The results of my examination, however, showed that, as regards teeth, this particular year showed no essential difference from the preceding or following years.

I designed some charts based on those in use by the British Dental Association, but amplified in order to demonstrate the correlation, if any between the state of the teeth and the general physical condition, and also to include a reference to those pathological conditions which have a more or less intimate connection with the development and diseases of the teeth and jaws. The children were not in any way selected specimens ; they were taken just as they came, according to the years in which they were born.

Time did not permit of my examining the whole school, but I was able to examine the numbers indicated below :—

Boys.		Girls.		Age.
Born in 1897 ..	45	Born in 1897 ..	44	7–8
,, 1896 ..	43	,, 1896 ..	37	8–9
,, 1895 ..	37			10–11
,, 1894 ..	39			11–12
Total	164		81	

Below are given detailed tables showing the state of the teeth and conditions associated with them, beginning with the youngest children, namely, those born in 1897.

Girls born in 1896—aged about ten.

Number examined	.. 37	
Hypoplastic enamel ("honey-combed" teeth)	.. 1	
Pharyngitis	.. 0	
Enlarged tonsils	.. 16	
Alveolar abscess and fistulæ	.. 3	
Enlarged (submaxillary lymphatic) glands	.. 31	= 84 per cent.
,, cervical glands	.. 0	
Anæmia	.. 27	
"Mouth-breathers"	.. 1	
Number of carious temporary teeth	..155	= 4·2 per girl.
,, ,, permanent teeth	.. 96	= 2·6 ,,

One healthy dentition.

Two hundred and forty-five children, between the ages of seven and twelve, were examined in this way, and out of this number but four were found to have the normal number of healthy teeth, and of this small number two were boys and two girls.

The use of the dental probe and mirror is of great importance in these investigations, as without these appliances the carious cavities most amenable to treatment, namely, the small ones, almost of necessity escape detection; and again, it is important to recognise that a minute opening in the dental enamel usually indicates a much larger cavity in the underlying less resistant dentine.

Totals.

Number examined	245	children
Number of decayed temporary teeth	952	= average per child 3·9
,, ,, permanent teeth	685	= ,, ,, 2·8
Alveolar abscesses and fistulæ discharging pus	23	= 9·3 per cent.
Chronic pharyngitis	40	= 16·3 ,,
,, enlargement of tonsils	71	= 29 ,,
,, submaxillary lymphadenitis (enlarged glands under the jaw)	150	= 62·2 ,,
Enlarged glands in neck	16	= 6·5 ,,
"Mouth-breathers"	6	= 2·4 ,,
Anæmia—22 boys, 66 girls	88	= 37 ,,

(13·4 boys, 81·4 girls.)

At the ages dealt with in this report the permanent dentition, even in the eldest children, is by no means completed, and consequently it is evident that the incidence of dental caries in the permanent teeth is far worse than appears at first sight; in fact my experience in this school shows that in most cases the permanent teeth become carious within two years of their eruption, showing the necessity for dental treatment at an early age in order to preserve the permanent teeth.

The appalling neglect of the most elementary principles of dental cleanliness is striking, and the absence of any evidence of skilled dental treatment, conservative or otherwise, beyond a few instances in which teeth have been extracted or broken. The mouths present every possible degree of malodorousness. Out of the 245 only three children possessed tooth-brushes for their own personal use, and used them regularly. These three children were practically free from caries. The teeth of most of

the remaining 242 were coated with tartar and the *débris* of past carbohydrate meals and bacterial growths; many were suffering from the effects of too long retention of temporary teeth, and others from premature extraction, both conditions leading to dental irregularities.

The presence of such an enormous number of carious cavities means that the mouths of these children are, in the majority of cases, little better than hotbeds for the growth and multiplication of the organisms of disease.

The decomposition of food *débris* and the swallowing of bacterial toxines is now well recognised as a source of much local and constitutional disease, and consequently a constant source of menace to the health, if not to the life of the individual.

It may be of interest in this connection to call attention to the recent observations made by Dr. William Hunter, at the London Fever Hospital, on the relation of oral sepsis to the complications of scarlet fever. He found that the greater the degree of oral sepsis the greater was the incidence of middle-ear suppuration, septic adenitis, rheumatism, albumenuria, gangrenous stomatitis, septic gastritis, enteritis, and so forth (*British Medical Journal*, February 24, 1906).

In view of the amount of oral sepsis in this school we note the large proportion of children that have enlargement of the submaxillary lymphatic glands, and though this enlargement is not in every case due to teeth alone, it cannot be doubted that the septic oral condition has been a powerful contributing cause.

Cervical adenitis is not common in the children examined in this school, the reason being that the submaxillary group have alone had time to become affected, hospital experience pointing to the fact that in severe cases of oral sepsis the glands of the neck become affected at a considerably later age than the submaxillary group.

With regard to the relation between the condition of the teeth and the physical condition of the children as shown by their height and weight, the charts show that in nearly all cases of extensive dental disease the measurements are below the average

The condition of the teeth of these children, that is to say, the children of an ordinary average representative school in a poor district, is so bad that not only are they suffering from their purely dental affection, but, owing to the secondary effects produced by these affections, their bodily nutrition is impaired, and their physical and intellectual development hindered.

It will be noticed that the number of girls suffering from anæmia, viz., twenty-two boys and sixty-six girls, is greatly in excess of the number of boys. This apparently bears no relation to the degree of oral sepsis or decayed teeth, and the explanation must in this school be sought in some other direction.

Congenital Syphilis.—With regard to this subject, I looked most carefully for any signs of this disease, and was unable to detect any evidence of its existence among the children examined.

Remedial Suggestions.

In order to bring about substantial improvement in the condition of the teeth in these schools it is essential that the co-operation of both teachers and parents should be obtained.

Instruction in the preservation and general hygiene of the teeth should

form part of the general curriculum of instruction in training colleges and pupil-teacher centres, as well as in the courses of home nursing, infant management, etc., in evening schools.

It is important to emphasise the fact that the condition of the temporary teeth is largely affected by the health and diet of the mother during pregnancy, and similarly, the structure and development of the permanent teeth is affected by the health and diet of the child during its early years of life. It is in the evening schools that these points can be well impressed upon those who have or may soon have the charge of children.

The teachers having been thoroughly instructed, with the aid of models, diagrams and lantern slides, in the importance of the subject, can then introduce the subject of "teeth" as simple object-lessons. For example, to show a child that a tooth that has been soaked in vinegar becomes so soft that it can be pared with a knife, is an excellent way of demonstrating the ill-effects following the excessive consumption of "pickled cabbage," an article of diet which is working havoc among the teeth of the factory girl class.

The teachers can also readily impress the children with the necessity of using a tooth-brush, and the importance of using it properly.

With regard to the use of the tooth-brush there are many difficulties. To begin with, a large proportion of the parents have neither the money nor the inclination to provide their children with tooth-brushes, and were they provided by the school authorities they would probably be used for all kinds of ulterior purposes, besides being mixed up indiscriminately, and thus serve as a medium for the transmission of disease from one mouth to another.

It appears that the only possible plan is for each child to be provided with a numbered tooth-brush, to be kept at the school, and used on arriving in the morning and in the afternoon, that is to say, at any rate after two of the daily meals.

This brings forward the question of diet. It is of importance that children should be impelled to eat tough, fibrous food, which not only acts as a natural tooth-brush, but also aids greatly in the development of the jaw-bones, and incidentally stimulates digestion.

Having dealt with the general principles of instructing teachers, parents and pupils on the subject of the health and preservation of the teeth, we come to the subject of "dental inspection," which is an essential step in the remedying of the dental disease from which nearly every child in the school suffers.

Dental inspection should be in the hands of special dentists appointed for this purpose, and directed to examine the teeth of each child at least once if not twice a year. Each child should then receive a card of directions, instructing its parents what steps to take to have the necessary treatment carried out.

The great difficulty is, of course, that of dealing with something like half a million children, of whom about 90 per cent. need some kind of dental treatment; and in the future the only way out of the difficulty will be to appoint a dentist to attend each school and carry out the treatment that each child requires.

At present the provision of dental hospitals and dental departments of general hospitals in this country is totally insufficient for the work required.

While engaged in their voluntary inspection at the Michael Faraday School, and, thanks to the invaluable co-operation of Mr. Marshall Jackman, the headmaster, we were able in many of the cases to urge the parents to take their children to certain hospitals to obtain the necessary treatment. An elaboration of this plan, combined, perhaps, with some arrangement with the hospitals, would be of the greatest service to the children in these schools.

A considerable number of the parents gladly received this advice, and took their children where they could obtain the necessary treatment. At the same time every child should be given a card or leaflet on how to preserve the teeth, expressed in plain, simple, everyday language, ignorance being, apparently, one of the chief causes of dental neglect and its consequences.

It is only, therefore, by impressing the community with the general principles of dental hygiene, by regular inspection of the children's teeth, and by treatment when required, that we can hope to contribute towards securing the best results from the expenditure upon education.

THE CARE OF THE TEETH IN THE SCHOOL.

By Professor Dr. JESSEN, Strasburg.

PROFESSOR DR. JESSEN introduced his paper by the announcement of the following principles :—

(1) The care of the teeth is an important part of school hygiene. Its importance is clearly proved by the well-known results of a large number of investigations on the condition of children's teeth in many countries.
(2) The first International Congress at Nuremberg, therefore, decided to continue the discussion at the second Congress in London.
(3) The Municipal School Dentistry at Strasburg, founded by combined private and municipal effort, was the first institution to deal with the subject. The experience thereby gained enables the foundations for the future work to be laid down.
(4) The experience gained in Strasburg has been confirmed by the school dentistries established in other towns.
(5) The ultimate aim of the Congress must be the establishment of school dentistries in all schools of all countries.

Few people are aware to what extent diseases of the teeth are prevalent at the present day, and still fewer understand to what an extent diseased teeth affect the health of children, especially of school children. In Germany, at the present moment, at least 90 per cent. of all elementary school children suffer from decayed teeth. In some districts with plenty of chalk the percentage of decayed teeth is somewhat less. In a

large number of towns the percentage rises above 90 to 95, 96 and 97 per cent.

Investigations carried on with hundreds of thousands of children in different countries show conclusively that caries of the teeth is the most widely-spread disease of the present day. This causes terrible ravages amongst children, and much illness and inconvenience to adults.

Dr. Landsberg, of Posen, states that when children's teeth are put in order by means of school dentistries, anæmia, one of the most frequent school diseases, will be greatly diminished. He is strongly of the opinion that anæmia is caused, not only by want of light and air, but also by malnutrition caused by inability to masticate and digest food on account of defective teeth. He draws attention to the fact that anæmic children suffer very largely from stomachic and intestinal diseases, which is no doubt principally owing to the state of their teeth.

Professor Jessen stated that the mouth is one of the principal entrances for diseases of the human frame. There was therefore no better means of combating disease than by keeping the mouth in perfect order. This was very important in the early age of childhood. It was most important in the case of elementary school children who, owing to economic conditions, could not afford the necessary expenditure for proper dental treatment.

Professor Jessen then referred to the discussion on the subject of school dentistries which took place at the first Congress in 1904, a resolution being passed by the general committee of the first Congress, and sent forward for further deliberation at the second Congress.

> "The authorities of the nation must combine to put the teeth of all inhabitants in order. This must be done by the establishment of municipal school dentistries with free treatment. Assistance from private sources should be accepted."

The time and opportunity have now arrived when members of the Congress should ask what has been done in the last three years for or against the resolution of 1904, and what further steps should be taken. The answer would be a satisfactory one. The treatment of the teeth of school children was about to be introduced in thirty-three German towns and in fifteen other towns. Authorities on all sides have shown the greatest interest in the matter. Strasburg has been overwhelmed with inquiries.

Professor Jessen then gave some account of the local development of the movement in Strasburg, and quoted some very interesting figures.

NUMBER OF CHILDREN IN THE ELEMENTARY SCHOOLS OF STRASBURG AVAILABLE FOR GRATUITOUS TREATMENT.

In the year ending—	Infant Schools.	Boys and Girls.	Total.
March 31st, 1903	4,381	12,738	17,119
,, ,, 1904	3,986	13,068	17,054
,, ,, 1905	4,265	13,808	18,073
,, ,, 1906	4,259	14,348	18,607

The number of children treated was :—

	Children Examined.	Treated.	With Fillings.	Extractions.
First year	5,343	2,666	699	2,912
Second year	6,900	4,967	4,832	6,530
Third year	4,372	6,828	7,065	7,985
Fourth year	834	7,491	8,340	8,552

Cost of treatment :—

1902.	1903.	1904.	1905.	1906.	1907.
£115.	£137 10*s*.	£271 10*s*.	£335	£427 10*s*.	£450

In no part of the public medical service have such results been obtained with such small expense. The experience of the Strasburg and other experiments has proved beyond doubt that the health of the children has been greatly raised by dental treatment. The care of the teeth has guarded against infectious diseases and been a most valuable factor in the struggle against the spread of tuberculosis.

The dental treatment is not compulsory, but few children fail to attend the school dentistries. But the treatment is compulsory in Strasburg in infants' schools and holiday camps, etc.

The educational results of the treatment have been most satisfactory in Strasburg. The report of the Government Inspector laid stress on the following facts :—

(*a*) School absences caused by toothache had greatly diminished.

(*b*) The work of children hitherto suffering from their teeth had greatly improved.

(*c*) The general health of children who occasionally suffered from toothache had greatly improved as a consequence of dental treatment.

(*d*) Very little school time had been lost by children attending school dentistries, as they went out of school hours.

(*e*) The attitude of the teachers towards the movement was a most sympathetic one.

(*f*) It is not necessary for the school dentist to go to the school very often. The children were fully aware of the advantages of the school dentistry, and go there at once when they notice that something is wrong with their teeth.

(*g*) The children took the greatest interest in the instruction given to them about the care of their teeth.

(*h*) The children like to be treated by the dentist, and no objections whatever had been experienced on the part of the parents.

Professor Jessen concluded his paper by quoting the following list of principles for discussion by school and other authorities and dental associations :—

(1) Caries of the teeth is at the present time the most widely-spread disease of the people ; it harms the development of the child, promotes infectious disease, and diminishes the capacity for school attendance and military service.

(2) It is therefore necessary to take measures against it. This is possible without any great increase in local expenditure.

(3) To this end a knowledge of the subject must be spread in schools and teachers' training institutes by charts, pamphlets, and similar means. The final aim of the movement must be the dental treatment of all elementary school children, the local authorities bearing the expense for the poorer children.

(4) Large towns should appoint a dentist devoting the whole of his time to the school children, smaller towns will only require the partial services of a dentist. Rural districts should combine and appoint a whole-time dentist.

(5) The systematic treatment of elementary school children can only be carried out in the local school dentistry (management, statistics, cost of the same).

(6) Managers of holiday camps and colonies, kindergarten schools, crèches, infant schools, open-air schools, orphanages, industrial and reformatory schools are urgently requested either to admit only children with healthy mouths or to insist upon immediate treatment.

(7) The systematic dental treatment of all elementary school children is a most valuable aid in the struggle against infectious disease and tuberculosis. A rationally managed school dentistry is therefore the most effective means for the prevention of tuberculosis. Schools for backward children will only attain their aims fully by co-operation with school dentistries.

(8) The benefits of the school dentistry are experienced by the children at once; the advantage to the community can be demonstrated in the course of a few years (reports of the teaching staff).

EINHEITLICHE ORGANISATION DES SCHULAERZTLICHEN DIENSTES FUER STAEDTISCHE SCHULEN MIT BESONDERER RUECKSICHT AUF DIE DIENSTANWEISUNG.

Von Sanitätsrat Dr. Fr. Cuntz, Wiesbaden.

1. Die schulärztliche Tätigkeit, als Teil der allgemeinen Schulhygiene, bezweckt in erster Linie die Festellung und Bekämpfung der bei Schulkindern sich findenden krankhaften Zustände (*Schülerhygiene*).

2. Sie schafft die Unterlagen für die weiteren Teile der Schulhygiene (*Bauhygiene und Unterrichtshygiene*) und bedarf einer auf weiterer Grundlage sich erstreckenden, gleichmässigen, einheitlichen Ausführung.

3. Sie teilt sich naturgemäss ein in—

(*a*) Feststellung des Gesundheitszustandes der Schüler durch körperliche Untersuchung;

(*b*) Massnahmen zur Beseitigung vorhandener und zur Verhütung neu auftretender Gesundheitsschädigungen.

4. Die letztere Tätigkeit umfasst eine Einwirkung der Schulärzte auf Massnahmen seitens der Schule: teilweise oder gänzliche Befreiung

vom Unterricht, Teilnahme an Sommerfrischen, Waldschulen, Turnspielen, Schulbädern u. dergl., sowie auf Massnahmen zur Gewährung von Nahrungsmitteln, Kleidungsstücken, zur Beschaffung ärztlicher Behandlung, der erforderlichen Brillen, Bandagen u. dgl.

Die ärztliche Behandlung selbst ist nicht Aufgabe der Schulärzte.

5. Zur Feststellung der Gesundheitsschädigungen der Schüler während der Schulzeit bedarf es—

(*a*) einer genauen Feststellung der beim Eintritt in die Schule bereits vorhandenen Krankheiten;
(*b*) einer Ueberwachung des Verlaufes dieser Krankheiten;
(*c*) einer Feststellung und Ueberwachung der im Laufe der Schulzeit neu auftretenden Erkrankungen.

6. Um diesen Forderungen zu genügen sind in der Dienstordnung für die Schulärtze vorzusehen:

I. Die "*Aufnahmeuntersuchung*" (*Erstuntersuchung*) sämtlicher zur Schule angemeldeter Kinder.

Bei derselben ist für jedes aufgenommene Kind ein "*Gesundheitsschein*" (Personalbogen) anzulegen, in welchem die Ergebnisse der ärztlichen Untersuchungen wie auch die Beobachtungen des Lehrers über körperliches und geistiges Verhalten des Kindes während der ganzen Schulzeit einzutragen sind.

Als Unterlage für diese Aufnahmeuntersuchung ist ein *anamnestischer Fragebogen* an die Eltern, bzw. Hausarzt, zu fordern. Derselbe soll enthalten Angaben über bisherige Krankheiten, Verletzungen, körperliche und geistige Fehler des Kindes; wünschenswert sind auch Angaben über gesundheitsschädigende häusliche Verhältnisse, Wohnung und dergl.

Aus dieser Aufnahmeuntersuchung, bzw. aus dem Gesundheitsscheine müssen sich ergeben:

1. Die vollständigen *Personalien des Kindes* (einzutragen durch den Lehrer).
2. *Grösse und Gewicht* aller Kinder auf Zentimeter und $\frac{1}{4}$ kg abgerundet (gemessen mindestens einmal im Jahre und zu gleichbleibendem Termin; einzutragen durch den Lehrer).
3. *Brustumfang*, jedenfalls bei allen schwächlichen ("schlechten") und namentlich auf Tuberkulose verdächtigen Kindern (gemessen bei In- und Exspiration, herabhängenden Armen, eingetragen durch Schularzt).
4. Urteil über die *allgemeine körperliche Entwicklung* des Kindes in Hinsicht auf seine Arbeitsfähigkeit ("Lernfähigkeit") nach den Zensuren "*gut*," "*mittel*," und "*schlecht*." (Nähere Erklärung über diese Zensuren s. unten in den Erläuterungen.)
5. Urteil über den *psychischen Zustand* des Kindes (notwendigerweise später zu ergänzen nach den Beobachtungen des Lehrers).
6. Angabe der *vorhandenen Krankheiten*:
   (*a*) allgemeiner konstitutioneller Art, Entwicklungs-Ernährungskrankheiten u.s.w.;

(*b*) spezielle Organerkrankungen, in einigen für den Schulbetrieb wichtigen Symptomengruppen. (Näheres hierüber s. unten in den Erläuterungen.)

7. Angabe, ob und in welcher Weise die vorhandene Erkrankung eine besondere Rücksichtnahme im Unterricht oder Teilnahme an den Wohlfahrtseinrichtungen der Schule erfordert (sog. "*Vorschläge für die Schule*").

8. Angabe, ob ärztliche Behandlung oder genauere Untersuchung durch Spezialarzt erforderlich ist (*Mitteilungen an die Eltern*).

9. Angabe, ob fernere schulärztliche Ueberwachung notwendig ist; Auswahl der "*Ueberwachungsschüler*" and "*Schulinvaliden.*" (Näheres hierüber s. unten in den Erläuterungen.)

Diese Aufnahmeuntersuchung ist möglichst genau nach allgemein gültigen ärztlichen Vorschriften und einheitlichen Grundsätzen durchzuführen.

Dem Schularzt ist für diese Untersuchung, wie für seine sonstige Tätigkeit, wenn irgend möglich, ein besonderes Zimmer in der Schule zur Verfügung zu stellen.

Als geeignete *Zeit für die Aufnahmeuntersuchung* empfiehlt sich der zweite oder dritte Monat nach dem Schulanfang.

Wünschenswert ist bereits in den ersten Tagen eine vorläufige Besichtigung zur Zurückweisung gänzlich schulunfähiger Kinder. Für die allgemeine Prüfung von Gesicht und Gehör ist ein späterer Termin zweckmässig.

II. Die "*schulärztlichen Sprechstunden,*" d.h. zeitweilige vorher zu vereinbarende Besuche des Schularztes in der Schule behufs

1. fortlaufender Kontrolle der Ueberwachungsschüler, je nach Bedarf.

2. Besuches der einzelnen Klassen während des Unterrichtes, einmal im Schulhalbjahr, zum Zwecke:

(*a*) einer äusseren Revision sämtlicher Schüler, besonders der "Schulinvaliden";

(*b*) Auswahl neuer kränklich oder verdächtig erscheinender Kinder, insbesondere bei herrschenden Epidemien, zur genauen Untersuchung im Arztzimmer;

(*c*) Beobachtung der lokalen Verhältnisse, Lüftung, Heizung, Schülerhaltung, Bankgrössen u.s.w.

3. Auskunftserteilung über schulhygienische Angelegenheiten an Rektor und Lehrer. In dringenden Fällen auch ausserhalb der vereinbarten Sprechstunden.

4. Erstattung von "*Vorschlägen*" und "*Mitteilungen,*" sowie Eintragung der Befunde in den Gesundheitsschein wie bei der Aufnahmeuntersuchung.

III. Die "*Nachuntersuchungen*" ganzer Schulklassen in bestimmten Zeiträumen in gleicher Weise wie die Aufnahmeuntersuchung.

1. Derartige Nachuntersuchung sämtlicher Kinder empfiehlt sich am *Ende des zweiten,* spätestens im dritten *und* jedenfalls im *achten, letzten* Schuljahre.

2. Zu fordern ist auch für diese Untersuchungen:
   (*a*) Ein Urteil über die allgemeine Entwicklung (s. oben) nach "gut," "mittel" und "schlecht";
   (*b*) Angabe aller neu vorgefundenen und etwaiger Veränderungen der früher vermerkten Erkrankungen;
   (*c*) nochmalige Prüfung der Sehschärfe, Auskultation des Herzens, Untersuchung der Wirbelsäule bei *allen* Kindern. Untersuchung sonstiger Organe nur bei Verdächtigen oder bereits früher Erkrankten.
3. Als Unterlage für die ärztliche Beurteilung bei diesen Nachuntersuchungen dienen:
   die durch die Lehrer jährlich vorgenommenen Wägungen und Messungen, sowie die Eintragungen der Lehrer über durch Krankheit verursachte längere Schulversäumnisse, die diesbezüglichen hausärztlichen Atteste u.s.w.
4. Bei der Nachuntersuchung der zur Entlassung kommenden Schüler des 8. (letzten) Schuljahres sind geeigenten Falles Vorschläge für die Wahl eines Berufes zu erteilen.
5. Im übrigen gilt auch für diese "Nachuntersuchungen" das oben für die "Sprechstunden" unter 3 und 4 Vermerkte.

7. In der Dienstordnung für die Schulärzte ist weiter zu fordern, *jährliche Berichterstattung* über ihre Tätigkeit, und zwar getrennt über die Ergebnisse der Aufnahmeuntersuchung—Sprechstundentätigkeit—und Nachuntersuchungen.

In diesen Berichten sind auch aufzunehmen, nach den durch die Schule geführten Listen:

die Art und Anzahl der im Schuljahr gemeldeten ansteckenden Erkrankungen;

die Zahl der an den Wohlfahrtseinrichtungen, Schulbädern, Turnspielen u.s.w. teilnehmenden Kinder.

8. Für die weiteren Teile der schulärztlichen Tätigkeit, dienstliche *Stellung*, Teilnahme an *Bauhygiene* und *Unterrichtshygiene* dürften folgende Forderungen in der Dienstanweisung aufzustellen sein:

(*a*) Dem leitenden Schularzt ist Sitz und Stimme in der Schulaufsichtsbehörde einzuräumen;

(*b*) Der Schularzt ist gegenüber Schule, Rektor und Lehrer nicht Aufsichtsorgan, sondern nur beratendes Organ;

(*c*) Dem Schularzte soll Gelegenheit gegeben werden, auch über Pläne zu Schulneubauten, bauliche Veränderungen und Einrichtungen mit dem zuständigen Bausachverständigen sich zu besprechen und zu verständigen;

(*d*) Auch in pädagogischen Fragen soll der Schularzt gemeinsam mit dem Schulleiter (Schulinspektor, Rektor) Einrichtungen und Betrieb des Unterrichts, soweit sie hygienisches Interesse bieten, besprechen und beurteilen;

(*e*) Ueber gesundheitlich-hygienische Verhältnisse der Lehrpersonen und Schulangestellten, soweit sie den Schulbetrieb berühren, steht dem Schularzte gleichfalls das Recht und die Pflicht der Beurteilung zu.

Zu den vorstehenden Bestimmungen für den schulärztlichen Dienst mögen folgende *Erläuterungen* über einzelne Punkte dienen: Im Interesse eines gleichmässigeren Vorgehens und dadurch erreichbarer grösserer Verwertbarkeit der Resultate schulärztlicher Tätigkeit und Berichte, dürfte deren Beachtung dringend zu empfehlen sein.

Wir bemerken vorweg, dass der gesamte Entwurf auf städtische Verhältnisse und öffentliche Volksschulen berechnet ist. Für kleinere Kreise, ländliche Verhältnisse, für private und höhere Lehranstalten und Sonderschulen wird die schulärztliche Tätigkeit in dem einen oder anderen Punkte je nach Umständen eingeschränkt werden können und müssen. Aber auch da, wo unsere Vorschläge nur teilweise durchgeführt werden, sollte dies wenigstens auf die gleiche Art und Weise geschehen.

ad I. "*Aufnahmeuntersuchung.*" Betreffs des "*Gesundheitsscheines*" verweise ich auf die folgenden Vorschläge meines Korreferenten.

Für den "*anamnestischen Fragebogen*" an die Eltern bzw. an den Hausarzt empfiehlt sich ein besonderes Blatt zu nehmen, das dem Gesundheitsschein später beigelegt wird. Diese beiden Papiere bleiben in Verwahrung des Schularztes bzw. in dessen Zimmer. Für den Lehrer und die Klasse dürfte eine *einfache Liste* genügen, in der die "Ueberwachungsschüler" und "Schulinvaliden" verzeichnet sind, mit Angabe der "Vorschläge," der "Mitteilungen" und deren Resultate, Angabe, ob und wann die betr. Kinder dem Schularzte wieder in der Sprechstunde vorzustellen sind. Auch könnten besondere Beobachtungen des Lehrers über einzelne Kinder in dieser Liste vorläufig—bis späterer Eintragung, je nach Bedeutung, in die Gesundheitsscheine—Aufnahme finden.

ad I, 4. Die Zensuren "*gut,*" "*mittel,*" und "*schlecht*" haben sich, so sehr sie anfechtbar sind und angefochten werden, dennoch als praktisch brauchbar erwiesen. Diese Brauchbarkeit dürfte sich in statistischer Hinsicht noch vermehren, wenn allseits die nachstehenden Gesichtspunkte der Beurteilung zu Grunde gelegt werden.

"*Mittel*" sind alle Kinder, deren körperliche Gesamtentwicklung, d.h. Grösse und Gewicht, Knochengerüst, und Muskulatur, Fettpolster, Blutmenge (Haut- und Schleimhautfarbe), dem Alter des Kindes und dem Durchschnittsniveau der betr. Schule, bzw. Bevölkerungsklasse entspricht; und von denen anzunehmen ist, dass sie den Anforderungen der Schule körperlich gewachsen sind.

Einzelne Mängel der eben genannten Faktoren, sowie andere Krankheitserscheinungen wären in der betr. Rubrik besonders anzuführen, brauchen aber das Gesamturteil nicht zu beeinflussen, falls die Arbeitsfähigkeit ("Lernfähigkeit") des Kindes dadurch nicht wesentlich beeinträchtigt ist.

Mit "*gut*" sind zu bezeichnen alle Kinder, welche eine über diesen Durchschnitt hinausgehende kräftige Gesamtentwicklung zeigen.

Auch hierbei brauchen leichtere, mehr äusserliche krankhafte Zustände (z.B. geringe Grade von Strabismus, Myopie, Astigmatismus, leichte Sprachfehler, Hautausschläge, kleine Hernien oder Missbildungen u.dgl.) das Gesamturteil nicht immer zu beeinträchtigen. Innere Organerkrankungen, Herzfehler, stärkere Refraktionsanomalien, grössere Brüche, Epilepsie, hochgradige Chlorose, Skrofulose, Rhachitis u. dgl. sind aber stets, auch bei äusserlich scheinbar kräftiger Entwicklung, Veranlassung zur Zensur "mittel" oder "schlecht," je nachdem die

Lernfähigkeit des Kindes in geringerem oder höherem Grade beeinträchtigt und eine entsprechende Rücksichtnahme im Unterricht oder schulärztliche Ueberwachung notwendig wird.

Mit "*schlecht*" sind zu beurteilen alle Kinder, welche weit unter der Durchschnittsentwicklung zurückgeblieben sind, oder welche bei äusserlich scheinbar "mittlerer" oder "guter" Gesamtentwicklung derartige Erkrankungen zeigen, dass sie entweder dauernder ärztlicher Ueberwachung oder aussergewöhnlicher Rücksichtnahme im Unterricht bedürfen.

ad I, 5. Ein Urteil über den "*psychischen Zustand*" des Kindes dürfte sicherlich auch bei der ersten Untersuchung und auf Grund der anamnestischen Fragebogen in vielen Fällen bereits möglich sein. Durch die weiteren Beobachtungen des Schularztes und Lehrers werden besondere Eigentümlichkeiten, krankhafte Veranlagungen und Aeusserungen im geistigen und gemütlichen Leben des Kindes festgestellt werden können und für das spätere Leben des Kindes von grossem Werte sein.

ad I, 6. "*Angabe der vorhandenen Krankheiten.*" Ich verweise auch hierbei auf die genauere Einteilung in dem durch den Korreferenten empfohlenen Muster des Gesundheitsscheines.

ad I, 8. "*Mitteilungen an die Eltern.*" Es muss als zweckmässig, ja notwendig bezeichnet werden, diese Mitteilungen mit einer vorgedruckten Anfrage an den Hausarzt bzw. Spezialarzt über genauere Diagnose und erfolgte Behandlung zu versehen, und deren Rückgabe in bestimmter Frist, etwa 14 Tagen, zu verlangen.

ad I, 9. Als "*Ueberwachungschüler*" sind zu führen alle Kinder mit

(*a*) ansteckenden und parasitären Erkrankungen,

(*b*) mit länger oder kürzer dauernden, einer Veränderung noch zugänglichen Erkrankungen wichtiger Organe, insbesondere der Sinnesorgane,

soweit das Interesse des Kindes oder der Schule eine ärztliche Ueberwachung erfordert.

Als "*Schulinvaliden*" sind zu bezeichnen Kinder mit unveränderlichen krankhaften Zuständen (Folgen abgelaufener Erkrankungen, Verletzungen oder angeborener Fehler), soweit diese Zustände die Lernfähigkeit des Kindes beeinträchtigen und dauernde Berücksichtigung seitens der Schule erfordern.

ad I. "*Vorläufige Besichtigung*" in den ersten Tagen des Schulanfangs dürfte sich zweckmässig nicht nur auf die Ermittlung der vollkommen schulunfähigen Kinder, sondern auch auf ansteckende und parasitäre Erkrankungen, Ungeziefer erstrecken. Auch bei den eigentlichen genauen Untersuchungen im zweiten oder dritten Monat muss dem Schularzt noch das Recht zustehen, schwächliche Kinder vom Schulbesuche auf ein ganzes Jahr zurückzustellen.

ad II. "*Sprechstunden.*" Für die Häufigkeit dieser Sprechstunden, d.h. Besuche des Schularztes in der Schule und in einzelnen Klassen, muss das lokale Bedürfnis entscheidend sein. Im allgemeinen dürfte ein Besuch alle 6–8 Wochen in jeder Schule ausreichen.

Bei wichtigen Erkrankungen, herrschenden Epidemien, ungesunden lokalen Verhältnissen wird eine häufigere schulärztliche Kontrolle erforderlich sein. Die Beobachtungen des Schularztes, etwaige Anträge auf Verbesserungen in Bezug auf Bauhygiene und Unterrichtshygiene müssen selbstverständlich schriftlich niedergelegt werden, sei es im Tagebuch

des Schularztes, sei es im Tagebuch des Rektors oder einem besonderen "Hygienebuch." Eine übersichtliche Zusammenfassung der gemachten Ausstellungen, Anträge u.dgl. ist auch für die jährliche Berichterstattung vorzusehen.

Wenn auch die Zeit dieser schulärztlichen Besuche im allgemeinen vorher bestimmt werden muss, so kann und soll doch der Besuch der einzelnen Klassen möglichst unerwartet erfolgen.

ad III. "*Nachuntersuchungen.*" Die Kommission hat sich in ihrer grossen Mehrheit für derartige klassenweise Nachuntersuchungen sämtlicher Schüler ausgesprochen, sie hat zum mindesten eine solche am Ende des zweiten bzw. im dritten Schuljahre und im letzten, achten, für notwendig erachtet. Eine häufigere Wiederholung, wie sie von manchen Seiten, auch von Wiesbaden, empfohlen und durchgeführt wurde, schien ihr entbehrlich in der Voraussetzung, dass die erste Aufnahmeuntersuchung und die erste Nachuntersuchung im zweiten oder dritten Jahre mit der erforderlichen Gründlichkeit geschehen.

Wichtigere Erkrankungen der Kinder während der übrigen Schulzeit werden sich durch die Beobachtungen des Lehrers und die äusseren Revisionen des Schularztes gelegentlich der Sprechstunden wohl stets herausfinden lassen.

ad Nr. 7. "*Berichterstattung*" der Schulärzte. Auch hierfür sind einheitliche Grundsätze dringend zu fordern und werden die diesbezüglichen Vorschläge des Korreferenten empfohlen.

ad Nr. 8. Für die *schulärztlichen Berichte*, soweit sie ein Bild über den gesamten Gesundheitszustand der Schule geben sollen, sind meiner persönlichen Ansicht nach auch die sämtlichen Schulversäumnisse "wegen Krankheit," die durch Schule registriert werden, in entsprechender Weise zu berücksichtigen und zu verwerten.

ad Nr. 9a. Die Teilnahme des "*leitenden*" *Schularztes* an der Verwaltung der Schule schien der Kommission ausreichend, zumal in grösseren Städten, sei der Betreffende nun ein vom Schularztkollegium gewählter Vertreter oder ein mit der Leitung des schulärztlichen Dienstes direct beauftragter Kollege (Schularzt, Stadtarzt).

EINHEITLICHE ORGANISATION DES SCHULAERZTLICHEN DIENSTES MIT BESONDERER RUECKSICHT AUF DIE DIENSTFORMULARE.

Von Stadtarzt F. Oebbecke, in Breslau.

Es ist natürlich, dass in einem grossen schulärztlichen Betriebe einer Stadt mit vielen schulärztlichen Bezirken sich bald das Bedürfnis herausstellt, einheitliche Resultate und Berichte durch einheitliche Dienstformulare in den verschiedenen Bezirken zu erzielen. Das gleiche Bestreben macht sich auch geltend, um die Einheitlichkeit des schulärztlichen Dienstes in der grössten Verwaltungeinheit einem ganzen Lande

zu erreichen. Es gab das auch die Veranlassung, dass der erste internationale schulhygienische Kongress in Nürnberg, 1904, beschloss hierüber besondere Referate auf dem zweiten internationalen Kongress in London erstatten zu lassen.

Aus den Ausführungen des Korreferenten Cuntz haben Sie erkannt, dass der schulärztliche Dienst der Schüler sich im wesentlichen nach zwei Richtungen vollzieht. Es finden entweder in bestimmten Zeiträumen Klassen-Untersuchungen statt, wobei sämtliche Schüler zur ärztlichen Untersuchung gelangen, oder es findet eine Klassenuntersuchung nur bei den Lernanfängern statt, während die Schüler in den späteren Klassen nur nach Auswahl und als sogenannte Ueberwachungsschüler in der Sprechstunde des Schularztes periodisch revidiert werden. Bei der Auswahl dieser Schüler wirkt sowohl der Schularzt gelegentlich seiner Klassenbesuche wie auch der Lehrer mit. Neuerdings hat sich in Wiesbaden noch das gemischte System von Sprechstunden-Ueberwachung und zweijährigen Klassen-Nachuntersuchungen ausgebildet.

Die Aufgabe des Schularztes bei seinen Untersuchungen ist, wie Sie wissen, die, dass er Diagnosen auf Krankheiten und Defekte zu stellen hat, die eine besondere Beziehung zur Schulfähigkeit haben und dass er daraufhin Anträge an die Schule und Ratschläge an die Eltern erteilt. Bezüglich ärztlicher Behandlung macht der Schularzt durch Formular-Mitteilung die Eltern nur auf die Notwendigkeit ärztlicher Behandlung aufmerksam ; er selbst darf in seiner Eigenschaft als Schularzt die Behandlung der Schulkinder nicht übernehmen. Diese Einschränkung der schulärztlichen Tätigkeit ist nötig, erstlich um die freie Wahl des Arztes durch die Eltern nicht zu beschränken, ferner um nicht ein unberechtigtes Eindringen der Schulärzte in das Erwerbsgebiet der praktischen Aertze, auf amtlichen Wege zu begünstigen. Durch diese vorsichtigen Beschränkungen der schulärztlichen Tätigkeit haben wir überall Eltern und praktische Aerzte zu freiwilligen Mitarbeitern und Verbündeten für die Schulhygiene gewonnen. Das Gleiche haben wir erreicht bei den Lehrern, indem der Schularzt nicht die Befugnis erhält, direkte Aufträge den Lehrern zu erteilen. Das Verhältnis zwischen Schularzt und Lehrer ist ein völlig coordinirtes. Ohne die gemeinsame und freiwillige Mitarbeit von Lehrern, Eltern und praktischen Aerzten würde die ganze schulärztliche Tätigkeit bald gelähmt sein.

Was speziell neben der Schülerhygiene die Bauhygiene betrifft, so hat sich im allgemeinen gezeigt, dass hier von der Behörde der hygienische Fortschritt durch zeitweise verbesserte Reglements, sowie durch die Mitarbeit besonderer Sachverständiger und des leitenden Schularztes genügend gewährleistet werden kann soweit Neubauten in Frage kommen. Dem einzelnen Schularzt fällt für seinen Bezirk mehr die Aufgabe zu, im laufenden Schulbetriebe auf die Ausführung der bestehenden hygienischen Vorschriften zu achten, z.B. Betrieb der Aborte, Kontrolle der Zimmertemperatur, Beleuchtung, Prüfung passender Bankgrössen, etc. Im Uebrigen wird sich der leitende Schularzt durch die Schularztkonferenzen mit den einzelnen Schulärzten in Fühlung halten müssen.

Bezüglich der Unterrichtshygiene wird der einzelne Schularzt nur wenig persönlich eingreifen dürfen. Hier sind gemeinsame Sitzungen von Vertretern der Lehrerschaft und der Schulärzte erforderlich.

Das Hauptgebiet des einzelnen Schularztes ist aber die Schülerhygiene.

Um nun diese schulärztliche Arbeit stetig und fruchtbringend

entwickeln zu können, bedarf es einer planmässigen und gleichmässigen Ausführung dieser Arbeit nach einer bestimmten Dienstordnung. Insbesondere müssen auch, da die Schule eine gemeinsame, nach gleichen Vorschriften geregelte Landesinstitution ist, die etwaigen Schulschäden dieser Zwangsinstitution nach einheitlichen Prinzipien bekämpft werden.

Was die schulärztliche Tätigkeit in Speziellen betrifft, so muss die Dienstordnung sowohl für das Dienstsystem der periodischen Klassenuntersuchungen wie der Sprechstunden-Ueberwachung anwendbar sein. Hier kann getrennt marschiert werden, wenn nur vereint geschlagen wird, sodass je nach lokalen Verhältnissen das eine oder andere Untersuchungssystem ruhig bestehen bleiben kann. Wie schon mein Korreferent erwähnte, empfiehlt es sich aber doch sehr, ausser der Sprechstunden-Ueberwachung und Lernanfänger-Untersuchung noch eine Klassen-Untersuchung in der Mitte und am Ende der Schulzeit vorzunehmen, um so eine steigende oder fallende Curve zu erhalten und darnach das gesamte Schülermaterial in drei bestimmten Zeitpunkten mit Bezug auf die Veränderungen ärztlicher Befunde vergleichen und die angewandten Massnahmen auf ihre Wirksamkeit prüfen zu können.

Bei der Grösse des nunmehr fast im ganzen Lande eingerichteten schulärztlichen Betriebes, bei der Verschiedenheit und dem vielfach subjektiven Charakter ärztlicher Urteile, wie es ja einem biologischen und psychologischen Untersuchungsgebiet eigentümlich sein muss, ist es nun zuerst nötig, um die schulärztlichen Untersuchungsresultate kontrollieren zu können, dieses Material möglichst gleichartig und dadurch rechnungsfähig für statistische Methoden zu gestalten. Es setzt dies sowohl gleichmässige Untersuchungsanweisungen voraus wie auch eine gemeinsame qualitative Klassifikation der Krankheitszustände und Defekte, die bei Schülern am häufigsten beobachtet werden. Diese Gleichmässigkeit für statistische Berechnung und Kontrolle kann nur erreicht werden durch bestimmte vereinbarte Dienstformulare.

Das Schülermaterial ordnet sich in natürlicher Weise, wenn man die Lernanfänger von den übrigen Klassen trennt. Die Aufnahme-Untersuchung der Lernanfänger ist bei sämtlichen Schülern der Klasse vorzunehemen, um dadurch festzustellen, mit welchen "status präsens" sie in die Schule eingetreten sind. Es geschieht dies nicht nur im Interesse des Schülers sondern auch im Interesse der Schule damit diese vor späteren ungerechten Beschuldigungen der Eltern geschützt werden kann.

Das Formular für die Aufnahme-Untersuchung der Lernanfänger muss so eingerichtet sein, dass es sowohl für gesunde wie kranke Schüler anwendbar ist. Es muss demnach erstlich allgemeine physiologische ferner pathologische Rubriken enthalten. Wir haben auf dem beigefügten Formular eine solche Verbindung hergestellt, die sich in vielen schulärztlichen Betrieben (Prag, Chemnitz, Breslau etc.) als zweckmässig erwiesen hat. Sie sehen in dem Formular "Gesundheitsschein," welcher speciell der ärztliche Eintragungsschein soll, die Rubrik "systematische diagnostische Gruppen" als physiologische Obergruppe und die Rubrik "spezielle in der Schulzeit häufige Diagnosen" als pathologische Untergruppe. Letztere enthält diejenigen pathologischen Einzeltypen, welche die schulärztliche Praxis als hauptsächliche Schuldiagnosen ergeben hat. Dieser Gesundheitsschein muss ferner so eingerichtet sein, dass er Nachträge während der ganzen Schulzeit gestattet sowohl bei der Sprechstunde wie bei den periodischen Nachuntersuchungen der Klassen,

Er ist also ein Personalschein für die ganze Schulzeit eines Schülers und bleibt am besten in Verwahrung des Schularztes.

Um die Mitarbeit des Lehrers zu sichern, ist noch ein Eintragungsschein für den Lehrer nötig, welcher in der Klasse aufbewahrt wird. Ich habe denselben als "Ergänzungsschein" bezeichnet. Der Klassenlehrer hat Tag für Tag Gelegenheit seine Schüler in körperlicher und geistiger Beziehung kontinuierlich zu beobachten, was dem Schularzt nicht geboten ist. Es bilden daher die Eintragungen des Lehrers wichtige, durch niemand sonst zu beschaffende Beobachtungsresultate, welche dem Urteile des Schularztes eine wichtige Unterstützung gewähren.

Es lassen sich auch die Eintragungen des Schularztes und des Lehrers (Gesundheits- und Ergänzungsschein) in einem Formular vereinigen. Die Trennung dieser Scheine hat aber den Vorteil, dass der Schularzt die eigenen Eintragungen in seinen Händen behalten kann und für die Sprechstunden sofort zur Verfügung hat. Die Aufbewahrung des vereinigten Gesundheits- und Ergänzungsscheins in der Klasse birgt zugleich die Gefahr der Verletzung des ärztlichen Berufsgeheimnisses in sich, ohne dass der Schularzt durch eigene Vorsicht sich dagegen schützen kann. Wo nur Klassen-Untersuchungen in längeren Zwischenräumen und keine schulärztlichen Sprechstunden stattfinden, lässt sich der vereinigte Schein eher brauchen.

Mein Korreferent Cuntz hält für die Eintragungen des Lehrers eine Klassenliste für sämtliche Schüler als ausreichend. Da diese aber jedes Jahr erneuert werden muss, wegen der Versetzung, so ist es nötig, die einzelnen Eintragungen über die Schüler in den Gesundheitsschein nachzutragen, was für den Schularzt eine bedeutende Arbeit ausmacht. Der besondere Ergänzungschein hingegen für den einzelnen Schüler bildet eine für die ganze Schulzeit eingerichtete Beilage zum Gesundheitsschein. Er enthält ausserdem auch die für die ganze Schulzeit eingerichtete Gewichts- und Messungstabelle des Schülers, welche ebenfalls vom Klassenlehrer ausgefüllt wird.

Es sollen ferner auch die Resultate der elterlichen Beobachtungen für die schulärztliche Kontrolle verwertbar gemacht werden. Dies geschieht entweder seitens der Eltern durch schriftliche Ausfüllung des "anamnestischen Fragescheins" oder die Eltern machen mündliche Angaben in der Sprechstunde, welche der Schularzt einträgt. Den Frageschein (cfr. Formular) mit dem Gesundheitsschein zu vereinigen, empfiehlt sich aus praktischen Gründen nicht.

Ausser diesen drei bezw. zwei Personalscheinen des Schülers ist ferner noch notwendig das Formular "Mitteilung an die Eltern." Es dient dem Schularzte dazu, die Eltern auf die Notwendigkeit einer ärztlichen Behandlung ihres Kindes aufmerksam zu machen; der Schularzt tritt hierbei nur als vermittelndes ärztlichtechnisches Organ der Schule auf. Wird das Kind dann ärztlich behandelt, so ist es wichtig auch die Ansichten des genauer untersuchenden und länger beobachtenden Behandlungs, bezw. Spezialarztes, kennen zu lernen; deshalb empfiehlt es sich, auf diesen Schein eine Antwort-Rubrik für den behandelnden Arzt vorzusehen (cfr. Formular). Diese Rubrik hat sich in Breslau sehr bewahrt und wurde stets gern von dem behandelnden Arzt ausgefüllt, da unsere Aerzte anerkennen, dass durch die Art unseres schulärztlichen Dienstes ihre Praxis in keiner Weise geschädigt wird. Um aber auch festzustellen, dass die Eltern nichts getan haben, ärztliche Behandlung

herbeizuführen und ihnen verdientermassen die Verantwortung für sogenannte Schulschäden später zuweisen zu können, ist streng darauf zu halten, dass alle diese Scheine mit oder ohne ärztliche Antwort durch das Schulkind wieder an die Schule zurückgeliefert werden. Auch die statistische Vollständigkeit verlangt dieses, um positive und negative Resultate gegenüberstellen zu können. Dieser Schein lässt sich ebenfalls mit dem Gesundheitsschein nicht vereinigen, da er durch zu viele Hände gehen muss.

Es wären demnach als notwendige Personalscheine des Schülers zu bezeichnen (1) der " Gesundheitsschein " getrennt oder vereint mit dem " Ergänzungsschein," (2) der Schein " anamnestische Fragen an die Eltern," (3) der Schein " schulärztliche Mitteilung an die Eltern."

Ausser diesen Personalscheinen sind aber auch für einen übersichtlichen schulärztlichen Betrieb Personallisten der Klassen nötig. Es sind dies (1) die Klassenliste der Ueberwachungsschüler und Schulinvaliden (cfr. Formular), (2) die Klassenliste über die Wägungen und Messungen (Wägungs- und Messungsliste).

Die Klassenliste der Ueberwachungsschüler und Schulinvaliden hat den Zweck bei einem Besuche in der Klasse durch den Schularzt, Kreisarzt, Schulinspektor etc. sofort diese Schüler feststellen zu können. Ferner kann der Lehrer danach in bequemer Weise die Ueberwachungsschüler in die Sprechstunde des Schularztes überweisen, sobald diese angesagt wird. Sie ist gleichsam ein Auszug und Register der Gesundheitsscheine für den Lehrer. Mein Herr Korreferent hat sich auch für diese Liste erklärt, da sie sich entschieden angenehmer benutzen lässt, wie der jetzige Wiesbadener Modus, wonach die Gesundheitsscheine der Ueberwachungsschüler mit dem Vermerk " ärztliche Kontrolle " versehen werden. Die Gesundheitsscheine müssen hierbei in der Klasse aufbewahrt werden, um bei Kontrollbesuchen zur Hand zu sein ; genannte Klassenliste macht dieses überflüssig.

Wegen der jährlichen Versetzung der Schüler ist der Schularzt auch gezwungen diese Listen jährlich zu erneuern. Es geschieht dies in Breslau in den ersten zwei Monaten jeden Schuljahres. So kommt dem Schularzt zu Anfang des Schuljahrs sein gesamtes Ueberwachungsmaterial im Zusammenhange immer wieder vor die Augen. Auch bietet diese regelmässige Jahresarbeit eine gleichsam automatische Dienstkontrolle. Die Klassenliste ist ferner sehr bequem brauchbar, um die besondere Tabelle des Jahresberichts über die Ueberwachungsschüler und Schulinvaliden zusammenzustellen, da sie alles enthält, was diese Tabelle erfordert (Klasse, Geschlecht, Diagnose).

Die Notwendigkeit besonderer Wägungs- und Messungslisten für die Klassen ergibt sich daraus dass die Wägungs- und Messingsresultate nach Klassen bezw. Alter und Geschlecht für den Jahresbericht bearbeitet werden müssen, wenn sie überhaupt einen Zweck haben sollen. Auf eine solche zusammenfassende Klassenliste zu verzichten und dafür die Eintragungen auf den einzelnen Gesundheits- bezw. Ergänzungsscheinen für diese Bearbeitung zu benutzen, würde eine sehr mühevolle und unpraktische Arbeit für den Schularzt sein. Diese Liste lässt sich mühelos vom Lehrer ausfüllen, während der Schuldiener die Wägungen und Messungen unter der Aufsicht des Lehrers vornimmt. Auch hat der Lehrer Zeit genug, wenn besondere "Ergänzungsscheine" für die einzelnen Schüler mit besonderer Wägungs- und Messungstabelle vorhanden sind

(cfr. Formular) das Wägungs- und Messungsresultat des Schülers in diese Tabelle jährlich einzutragen.

Da die Schüler der gleichen Klassen vielfach in verschiedenem Alter stehen, so ist es nötig gleiche Altersgruppen auf der Liste zu bilden. Wegen des schnellen Wachstums des Schülers werden diese am besten nicht nach Jahren sondern nach Halbjahren gruppirt. Ich habe die Gruppenbildungen Januar bis Juni und Juli bis Dezember des gleichen Geburtsjahres in meinem Betriebe sehr brauchbar gefunden. Die Semester des Schuljahres statt des Kalenderjahres hier zugrunde zu legen, erscheint mir weniger leicht durchführbar bei der verschiedenen Abgrenzung des Schuljahres in verschiedenen Ländern. Bezüglich der gleichmässigen Berechnung für Durchschnittslänge und Durchschnittsgewicht der gleichen Altersgruppen gibt die Anmerkung des Formulars Auskunft.

Alle diese als notwendig vorgeschlagenen Formulare erfüllen aber nur ihren Zweck, wenn sie sich zu übersichtlichen, alles Wesentliche resumierenden Tabellen des Jahresberichts vereinigen lassen. Es besteht also ein bestimmtes Abhängigkeitsverhältnis zwischen Dienstformularen und Jahresbericht.

Welche Tabellen sind nun nötig für den Jahresbericht? Sie sollen enthalten einerseits die schulärztlichen diagnostischen Befunde, andererseits die Resultate schulärztlichen Tätigkeit an dem Schüler. Sie sollen trennen Lernanfänger und sonstige Klassen. Die Tabellen der Lernanfänger müssen eingerichtet sein für alle Schüler, normale und anormale. Wo regelmässige Klassen-Nachuntersuchungen bestehen, sind dieselben Tabellen wie bei den Lernanfängern zu benutzen. In diesen Tabellen werden also normale und anormale Schüler in ihren Zahlen direkt gegenüber gestellt. Sie enthalten die Einteilung nach Geschlecht und Symptomgruppen.

Für die Ueberwachungsschüler und Schulinvaliden verschiedener Klassen empfiehlt es sich aber noch eine besondere Tabelle anzulegen, um die Klassen in pathologischer Hinsicht durch ihre Zahlen direkt vergleichen zu können und um zu erkennen, wo vom Durchschnitt auffälig abweichende Zahlen auftreten, und hier besondere ursächliche Feststellungen vorzunehmen. Diese Tabellen der Ueberwachungsschüler sollen die Zahlen geben über vereinbarte Symptomgruppen. Da aber solche Symptomgruppen bei derselben Person in verschiedener Weise und mehrfach auftreten können, ist der Zahl dieser Symptomgruppen die Zahl der erkrankten Personen in einer besonderen nach Geschlecht und Klassen getrennten, nach Durchschnittswerten und Prozenten berechneten Tabelle gegenüber zustellen.

Jeder Schularzt liefert diese Jahrestabellen für seinen Bezirk an denjenigen leitenden Arzt ab, welcher den Gesamt-Jahresbericht zusammenzustellen hat. Ausserdem hat jeder Schularzt eine zusammenfassende Uebersicht zu geben, welche die Anzahl der von ihm erledigten Klassenbesuche, Sprechstunden, Mitteilungen an die Eltern, Dispense von Schülern etc. enthält.

Von den sonst z. Zeit in Gebrauch befindlichen, aber nicht als notwendig zu bezeichnenden Formularen, erwähne ich noch kurz folgende.

Einladungsformular an die Elter zur schulärztlichen Aufnahme-Untersuchung der Schulkinder.

Mitteiling an die Eltern über die bevorstehende Aufnahme-Untersuchung bezw. Aufforderung zu eimer hausärztlichen Aufnahme-Untersuchung nach Schulformular.

Besondere Mitteilungen an die Eltern wegen notwendigen Augenuntersuchung, Brillenbeschaffung, orthopädischer und zahnärztlicher Behandlung.

Einladung der Eltern zur Besprechung der Berufswahl mit Schularzt und Lehrer.

Mitteilung an die Eltern betreffs vorgefundenen Ungeziefers und Behandlungsanweisungen dazu. Ratschläge betreffs hygienischer Behandlung der Zähne.

Ratschläge betreffend das Verhalten bei ansteckenden Augenkrankheiten.

Anfrage an den praktischen Arzt wegen Infektionsfähigkeit eines erkrankten Schulkindes.

Ueberweisungsformular des Rektors an den Schularzt behufs Schüleruntersuchung und ebenso des Schularztes an den Schulspezialarzt.

Begleitschein bei Schulwechsel zu den schulärztlichen Papieren des Schulkindes.

THE EYESIGHT OF THE POORER CITY SCHOOL CHILDREN.

By H. Wright Thomson, M.D.

Oculist to the School Board of Glasgow; Ophthalmic Dispensary Surgeon, Glasgow Royal Infirmary.

The influence of training on the eyesight is exemplified in the cases of the detective officer who takes in so much at a glance, of the seaman who detects distant lights or ships, and of the countryman who can pick out objects in the landscape so much more quickly than the townsman. It must be remembered that such visual qualifications are the result of training of the brain and not of the eyes. Two persons with optically normal eyes looking at the same picture will have similar pictures formed in their eyes, but their brains will perceive them more or less in detail according to their training or aptitude.

Such observation of the adult's visual perspicuity, and its apparent relation to training and environment, suggest an important field of inquiry for the educationalist. Firstly, can it be shown that children vary in acuteness of vision according to their environment? And secondly, if they do, can anything be done for them at school?

The following evidence relative to these questions I obtained during a session's work as oculist to the School Board of Glasgow. 52,493 children, above the infant department, attending sixty-seven schools, mostly working class, in all stages of prosperity, were tested by the teachers. Of these 35 per cent. were found to have vision below the normal standard, and were referred to me for investigation. I found

that 14 per cent., although unable to see well, had nothing apparently wrong with their eyes. It seemed as though their vision was functionally defective. I constructed a chart in which the schools were arranged according to the percentages found defective by the teachers, and which also showed the percentage found by me to have optical or physical defects. The proportion of children who could be improved by the wearing of spectacles was nearly the same in all the schools, but the proportion who had defective sight, yet did not require spectacles, varied within wide limits. Most of the city schools were at the upper end of the chart line, and the schools at the outskirts of the city at the other. Arranging the schools in districts, the aggregate showed the same relative results. Further, I examined two country schools. Both were visually much superior to the city schools. There was thus indicated a relationship between districts of residence and visual acuteness, apart from optical defect. Study of the details of the results entitles one to assert that the poorer a city child's circumstances are, and the more closely built his district is, the less likely is he to have sharp distant vision.

Passing to the second question : Can anything be done at school to improve the poorer city child's vision ? The answer is affirmative. Attention should be paid to the fact that these, by reason of their surroundings, are habituated to short ranges of vision ; yet, up to the ages of seven or eight, a child's eye is structurally better adapted for distant than for near vision—indeed peering at close objects is apt to produce permanent harm. In the infant department an effort should be made to provide a definite visual training. It would replace the natural training which the children lose by reason of their surroundings. On the other hand, additional harm may be prevented by abolishing sewing, and all other work involving close use of the eyes. To counteract the effect of their poor circumstances, I have evidence to show that good feeding would do much. I examined a large number of industrial school children, some in day schools, others in a residential school. All were fed at school, and all were from the poorest districts and homes. Many had physically defective eyes, but the proportion with functional defect was much lower than in the poorer class Board schools.

In conclusion, the poorer city school children are liable to have functionally defective sight—that is, a defect of sight which is not due to any physical abnormality of the eyes, but seems to be due partly to want of training and partly to malnutrition. The effect of want of training might be neutralised, to some extent at least, by certain modifications in the curriculum of the infant department, notably by abolishing sewing and all forms of work which require close poring over, and by instituting suitable visual exercise games. The effect of malnutrition might be combated by proper feeding, as evidenced by the better visual standard in the industrial schools.

METHODE DER UNTERSUCHUNG DER IN DIE UNTERSTE KLASSE EINTRETENDEN VOLKSSCHULKINDER ZU LEIPZIG.[1]

Von Sanitätsrat Dr. THIERSCH, Leipzig.

SEIT einigen Jahren werden auf Anregung von Sanitätsrat Dr. Thiersch in Leipzig die dortigen Schulkinder der untersten Klassen mit bestem Erfolg nach folgender Methode untersucht.

I.

Voruntersuchung durch die Lehrer.

Die Lehrer werden von den Schulärzten sorgfältig instruirt und übernehmen die Vorprüfung der Seh- und Hörschärfe.

Jedes Auge wird einzeln nach einer der bekannten Tafeln auf 6 Meter, jedes Ohr einzeln mit Flüsterstimme auf 8 Meter Entfernung geprüft. Das Ergebniss der Prüfung wird notirt und dem Schularzt mitgeteilt.

Die Voruntersuchung durch die Lehrer anstatt durch die Schulärzte hat folgende Vorteile:

(*a*) die Lehrer werden für die Untersuchung selbst interessirt.

(*b*) Sie behalten die Kinder, bei denen sich gröbere Fehler gefunden haben, besser im Gedächtniss.

(*c*) Das Ergebniss der Untersuchung ist zuverlässiger, da die Kinder dem Lehrer gegenüber weniger befangen sind und infolge dessen genauere Angaben machen. Auch versteht es der Lehrer im Allgemeinen besser mit dem einzelnen Kind umzugehen und kann die Untersuchungen in grösserer Ruhe vornehmen.

(*d*) die Schulärzte werden bedeutend entlastet und behalten für die eigentliche Untersuchung mehr Zeit und Musse übrig.

Die Voruntersuchung durch die Lehrer ist eine *freiwillige*. Nach den bisherigen Erfahrungen ist sie fast ausnahmelos gern und sehr gewissenhaft ausgeführt worden.

Sie wird, wie die Hauptuntersuchung selbst, am zweckmässigsten zu Beginn des 2. Halbjahres ausgeführt. Erst dann haben sich die Kinder soweit an den Schulbetrieb und den Lehrer gewöhnt, dass sie ihre Befangenheit ablegen und ihre Angaben zuverlässig werden.

II.

Die Hauptuntersuchung durch den Schularzt.

Jede Klasse wird am besten einzeln untersucht. Zu der Untersuchung werden die Eltern durch gedrucktes Circular eingeladen, in dem auf die Wichtigkeit der Sache aufmerksam gemacht wird.

Die Eltern, meistens die Mütter, finden sich auf diese Einladung hin zahlreich, ja in vielen Klassen *vollzählig*, ein.

Vor Beginn der Untersuchung hält der Schularzt einen *hygienischen Vortrag, der*, um das Publikum nicht zu ermüden, nicht länger als eine halbe Stunde dauern darf.

[1] In Abwesenheit des Verfassers vorgetragen von Dr. Hogarth.

In diesem Vortrag werden nach freier Wahl gesundheitliche Themata allgemeiner Natur behandelt, vorzugsweise folgende :

1. Reinhaltung des Körpers. Baden und Schwimmen.
2. Reinhaltung der Mundhöhle, besonders Zahnpflege.
3. Zweckmässige Ernährung.
4. Gut gelüftete Schlafzimmer.
5. Zweckmässige Kleidung. Bei den Mädchenklassen wird auf die Schädlichkeit des Corsets an der Hand der Wachsmuth'schen Wandtafeln verwiesen.
6. Spiel und Sport.
7. Alkoholfrage.

Die Vorträge werden von den Versammelten stets mit der grössten Aufmerksamkeit und Beifall angehört.

Nach Beendigung des Vortrags beginnt die eigentliche Untersuchung. Es werden zunächst die Kinder noch einmal geprüft, bei denen der Lehrer erhebliche Störungen der Seh—und Hörschärfe gefunden hat.

Alsdann werden die Kinder bei entblösstem Oberkörper einzeln dem Schularzt vorgeführt, der sie in Gegenwart der Mutter und des Lehrers untersucht. Bei dieser Gelegenheit teilt die Mutter wichtigere Dinge über die bisherige Entwickelung, etwa überstandene Krankheiten, krankhafte Anlagen, hereditäre Verhältnisse und Anderes mit. Dann werden untersucht :

1. *Mundhöhle.* Bei jedem Kind wird ein besonderer Holzspatel verwendet.
2. *Zähne.*
3. *Herz.*
4. Bei Verdacht auf Lungenerkrankungen die *Lungen.*
5. *Wirbelsäule.*
6. *Haut.*

Ausserdem die allgemeine körperliche Beschaffenheit. Alles dies zusämmen mit dem Augen—und Ohrenbefund und den oben erwähnten Angaben der Eltern wird vom Lehrer in Form kurzer Bemerkungen in die *Gesundheitskarte* des Kindes notirt, die einen Teil der Personalkarte bildet.

Diese Karte geht von Klasse zu Klasse und ist in Verwahrung des jedesmaligen Klassenlehrers, der somit Gelegenheit hat, sich jederzeit über das Ergebniss dieser Untersuchung zu unterrichten.

Werden bei der Untersuchung körperliche Fehler festgestellt, wie Herzfehler, Skoliose, Nervenleiden, so werden die Eltern angewiesen, das Kind alsbald in privat—bezw. specialärztliche Behandlung zu überweisen.

Die Dauer der Untersuchung einer Klasse von 40 Kindern nebst Vortrag dauert etwa 1½ bis 2 Stunden.

Es ist in Aussicht genommen, diese Untersuchungen durch *Nachuntersuchungen zu* ergänzen. Diese Nachuntersuchungen hätten sich vorzugsweise auf die Kinder zu erstrecken, bei denen gelegentlich der ersten Untersuchung schwerere Störungen gefunden wurden.

Bereits jetzt aber werden jährlich sämtliche Kinder der Klassen, in denen der *Turnunterricht* beginnt, auf ihre gesamte körperliche Beschaffenheit, Tuberkulose und Herzfehler untersucht.

Untersucht werden jährlich ca. 10,000 Kinder von 24 Schulärzten.

INSPECTION OF SCHOOL CHILDREN.

By Helen MacMurchy, M.D., Toronto.

On the character of the school physician depends the success of the work. However well qualified he may be professionally, if the personal element of interest and enthusiasm is lacking, his efforts are doomed to failure. In four provinces of Canada a beginning with medical inspection has been made. At Halifax (Nova Scotia) two school doctors were appointed in May, 1907, and by June had accomplished a preliminary examination of 1253 children, who obviously needed attention, all opposition on the part of their parents having already practically subsided. In Quebec medical inspection has for some years been in force at two schools in Montreal, and an effort has been made to establish it generally. In British Columbia an experiment in medical inspection is in progress. Throughout the Province of Ontario residential schools usually have their own doctor, who examines the pupils on admission and at stated intervals. Dentists and oculists have, on occasion, voluntarily given their services; and in the private and residential schools from 5 per cent. to 10 per cent. of the pupils, although children of well-to-do parents, have decided defects of vision, those from the Far West being apparently possessed of the keenest sight. The consensus of the teachers is almost unanimously in favour of medical inspection, so far as it has been expressed.

Mr. George Hogben, M.A. (Inspector-general of Schools, New Zealand), said that in New Zealand the great majority of the schools were country schools scattered over a comparatively large area. It would be impossible to have an examination of each child by a special medical officer within a reasonable time after admission without unduly raising the cost of medical inspection. To avoid the dilemma of too great delay or too great cost, it seemed absolutely necessary that there should be a preliminary examination by the teacher in regard to such points as eyesight, hearing, the more obvious condition of the mouth, height, weight and chest-measurement. It was essential that the teachers should be trained for this work. It was their duty to refer to the school doctor all cases that seemed abnormal or urgent.

Dr. A. Hayward (London) pointed out the necessity of a central medical authority to coordinate medical inspection in the schools. It was needed both to stimulate and to restrain local efforts. In view of the difference of opinion which seemed to exist as to the degree of thoroughness to which inspection should be carried—was it to aim at the detection of the common diseases which affected educational capacity? or were the schools to be made into ante-rooms for hospitals, for the detection of diseases of all kinds to which children were liable? Elaborate examinations could not be carried out in the present state of school accommodation, and would in any case be most inconvenient if held during school hours.

As regards treatment. Provision for this must be the necessary corollary to inspection, and must be carried out, when required, by voluntary associations, as in a large proportion of cases the mere notification of defects to parents was useless. At Wimbledon, for instance, there was the Invalid Children's Aid Association.

Dr. J. E. SANDILANDS (Winchester) criticised the statement that it was possible to make a satisfactory examination of forty children in one and a half hours. His own experience of examining 600 children at Winchester had led him to put the irreducible minimum at four minutes for each child, or two hours for thirty children. The examination included the condition of the eyes, nostrils, throat, tonsils, ears, teeth, glands, nutrition, and obvious defects of limbs, and was unsatisfactory and perfunctory. It had been pointed out that the amount of time devoted to each child was of the first importance, as constituting the true basis for estimating the number of schools which should be allocated to one medical officer, and the probable cost of inspection. The teacher's reports on cases entailed visits from the doctor at the child's home, and this was an essential feature of the system at Winchester. Although the issue of a uniform card for entering the results of examinations was desirable, simplicity in the form of any card that might be drawn up was all-important. There must be no crowding of details; room must be left for footnotes; otherwise absolute uniformity would prove cumbersome and impossible.

Dr. C. S. BREWER (Birkenhead) remarked that female medical practitioners should be employed in the inspection of infant schools. As regards uniformity in cards and schedules, the Board of Education must obviously be responsible for tabulating the methods and forms of medical inspection. There was no need to assign the work either to the overburdened medical officer of health or to specially appointed school doctors. The ratepayer was rising in revolt at the ever-increasing demands upon his purse, and, if asked for too much, would vouchsafe nothing. The inspection of school children could be conducted by any practitioners in the various districts who cared to undertake the work.

Dr. RALPH H. CROWLEY (Bradford) stated that in Bradford not more than about 35 per cent. of the cases noted by the doctor were attended to. A good deal depended on the interest taken by the teacher and on the social status of the child. If the teacher supported the doctor, the latter's advice would be followed in about 90 per cent. of the cases. At the preliminary inspection not more than thirty children could be examined—height, weight, points in physical condition noted—in a school session. Some steady attempt was necessary, granted the great difficulties, to get some uniformity in cards and schedules, the main points being of almost international importance. It was essential to examine every child and note cases for a second interview.

Dr. THOMAS WOOD, J.P. (delegate, Leith School Board), observed that the examination of children in a general way should not be entirely tabooed. It was carried out in Leith, and a schedule filled up giving particulars as to sight (Snellen's test), ears, height, weight, etc., and general remarks. When defects were found the parents were notified. Those of the better class had the defects remedied; the lower class almost entirely neglected the notices, and nothing was done. It would be found that in slum schools the antero-posterior diameter of the chest, when compared with the lateral, was greater than in children from well-to-do districts, and this showed a greater proportional occurrence of rickets in the one case than in the other.

Dr. DOROTHEA COLMAN (London) gave her experience, derived from examinations of pupils in three large high schools in London, attended by girls of the middle classes. In most cases the mother is present at the examination, and the need for treatment, if any be required, is pointed out to her at the time. In addition, advice is given as to the girl's clothing, food, exercise, work and sleep. Each examination of girls of this class, including the dressing and undressing, and the interview with the mother, occupies on an average twenty minutes. It has been found that the advice of the inspector is much more frequently adopted when the mother has herself been present at the inspection than when a report has been sent to her in writing.

While fully convinced that these inspections are almost impossible to carry out, and are greatly impaired in usefulness, without the sympathetic

co-operation of the teachers, the speaker deprecated entrusting to the teachers themselves any part of the examination except the simplest anthropometrical observations such as measurements of height and weight.

Dr. CUNTZ (Wiesbaden) closed the discussion by thanking the numerous speakers for the interest shown in the subject, and by answering several questions put to him about the time and methods of the first examination. He fully agreed that the school doctor had to work hand-in-hand with the teacher and the family. Wherever the teachers showed interest in school hygiene, there the school doctor would find most success. In Germany the examination always took place during school hours, although no special provision was made for it on the time-table. But the doctor was careful to avoid interfering with important lessons. Dr. Cuntz concluded by stating that he regarded his proposals as formulating an international method for the performance of a school doctor's work.

L'ORGANISATION DE L'INSPECTION MÉDICALE DES ÉCOLES COMMUNALES DE LA VILLE DE NICE.

Par le Dr. CÉSAR ROUX,

Médecin-inspecteur des écoles de la Ville de Nice ; Chirurgien de l'Hôpital des Enfants-Malades (Clinique Lenval).

L'INSPECTION médicale des écoles communales de la Ville de Nice repose sur l'institution du " *Livret Scolaire de Santé.*"

Ce Livret, trait d'union indispensable entre les élèves et les médecins-inspecteurs, constitue le seul moyen véritablement efficace de veiller sur la santé des enfants à l'école.

Nous croyons avoir été un des premiers, grâce à la libéralité de la municipalité de Nice, à faire l'essai de cette innovation. Depuis le 1er octobre 1905, un Livret Scolaire de Santé a été mis entre les mains des 6000 élèves fréquentant les écoles communales de la ville de Nice.

Pour répondre à la seule objection, mais qui était capitale, soulevée à propos de l'institution de ce carnet : celle de violer le secret professionel médical, nous avons composé le dossier sanitaire en deux parties :

Une première partie constituant le Livret sanitaire proprement dit et qui reste la propriété de l'élève ;

Une seconde partie, la fiche sanitaire, classée sur un registre qui se trouve entre les mains du médecin-inspecteur.

(*A.*) Le carnet comprend :

1° Des indications générales concernant les conditions d'admission des élèves nouveaux, de renvoi, lorsque l'élève présente à l'école un cas douteux de maladie, ou de réadmission après une maladie ;

2° Des renseignements sur l'élève qui ne peuvent en rien éveiller la susceptibilité des parents : nom, âge, lieu et naissance, domicile,

date des vaccinations, poids, taille, périmètre thoracique, sports ;

3° Des cases à remplir soit par le directeur ou la directrice de l'école pour signaler l'éloignement ou l'absence en cas de maladie, soit par le médecin inspecteur pour permettre la réadmission de l'élève relevant de maladie ;

4° Enfin, une dernière page est réservée à quelques notions d'hygiène scolaire succinctement résumées :

"L'air, la lumière, la propreté forment la base de toute hygiène. Les classes devront être fréquemment aérées pour renouveler l'air confiné, vicié par la respiration.

La lumière est indispensable à la vie : les plantes ne poussent point dans l'obscurité. Les écoliers, jeunes rejetons, ont largement besoin de la lumière du jour. Le soleil est le meilleur destructeur des microbes : "Là où pénètre le soleil n'entre pas le médecin," dit le proverbe italien. Les classes doivent donc recevoir beaucoup de lumière.

La propreté de la classe dérive de la propreté de l'élève.

L'écolier doit prendre des bains fréquents, surtout l'été ; ses mains et sa figure seront toujours d'une propreté irréprochable, de même ses oreilles. Les ongles seront coupés ras.

Il ne faut jamais cracher par terre, ni porter à la bouche les crayons, les manches des porte-plumes ; la tuberculose, cette maladie qui tue en France plus de 150,000 personnes par an, étant surtout contagieuse par la salive et les crachats.

Le balayage des parquets, des couloirs, sera toujours fait avec un chiffon humide ou avec de la sciure de bois mouillée, afin de ne pas soulever les poussières quelquefois contaminées par les crachats desséchés et pulvérisés.

On doit éviter les échanges de coiffures entre écoliers, qui risquent ainsi de se transmettre les maladies du cuir chevelu si fréquentes à leur age : les teignes, la pelade, les parasites. Les enfants doivent porter les cheveux courts afin de ne pas cacher dans leur chevelure les germes de ces maladies.

La vaccination récente met à l'abri de la variole : tout écolier doit avoir été vacciné au moins depuis un an.

Les élèves atteints de scarlatine, diphtérie, rougeole, coqueluche, angine, gale, etc., constituent un grand danger pour leurs camarades et ne doivent être réadmis à l'école que complètement guéris ; la plupart de ces maladies sont contagieuses même pendant la convalescence.

Les mauvaises attitudes prises pour l'écriture, la lecture, engendrent la déviation de la taille, la myopie. L'écriture droite est préférable à l'écriture penchée ou anglaise qui prédispose à ces affections.

L'alcoolisme, assez commun chez l'écolier—"il boit comme un homme," disent les parents fiers de leur enfant—amène plus tard de tristes conséquences.

L'écolier ne fumera point, pour conserver intactes ses facultés intellectuelles, surtout la mémoire.

Le travail intellectuel sera régulier et non soumis à ces coups de feu si fréquents la veille des compositions ou des examens : cause de surmenage cérébral très funeste à l'écolier."

Chaque livret porte en tête un numéro d'ordre correspondant au numéro de la fiche sanitaire du registre.

(*B.*) La fiche forme un dossier plus complet. Elle est ainsi constituée :

N° :	**École :**	*Père :* *Mère :* *Famille :*
Noms :	*Domiciles :*	
État général :	*État intellectuel :*	*Infirmités :*
Vaccination :	*Maladies antérieures :*	*Tube digestif :*
Poumon et Cœur :	*Vue :*	*Oto-naso-pharynx :*
Peau et cuir chevelu :	*Dents :*	*Observations :*

Aucun élève nouveau ne peut être admis à l'école s'il n'est muni du *Livret sanitaire*, qui le suivra partout jusqu'à la fin de ses études primaires.

Il doit avoir été vacciné depuis au moins un an.

Lorsqu'un élève présente à l'école un cas douteux de maladie il est envoyé au médecin-inspecteur qui donne son avis et, le cas échéant, l'adresse au médecin-spécialiste chargé du service.

A cet effet le *Livret sanitaire* porte des cases ainsi conçues :

L'élève..... *a été éloigné ou s'est absenté de l'école pour cause de*.....

.....

Nice, le.....190 L. D.....

L'élève.....*peut être réadmis à fréquenter l'école à partir du*.....

.....

Nice, le.....190 Le Médecin-inspecteur.....

Le personnel médical de l'Inspection des écoles communales de Nice comprend : Un médecin-inspecteur (médecine et chirurgie générales) ; un médecin oculiste ; un médecin spécialiste pour les maladies des oreilles, de la gorge, et du nez ; un médecin spécialiste pour les maladies de la peau ; deux chirurgiens-dentistes.

Le rôle du médecin-inspecteur doit être surtout un rôle prophylactique : prévenir, dans les milieux scolaires, les maladies et affections qui menacent les élèves.

Nous croyons avoir atteint ce but à Nice : (1) grâce à la collaboration quotidienne et constante des membres de l'enseignement—instituteurs, directeurs ou directrices d'école ; (2) par la spécialisation des services médicaux ; (3) par la création du *Livret Scolaire de Santé*, corollaire indispensable de l'inspection médicale des écoles.

LE MÉDECIN SCOLAIRE DANS LES ÉCOLES NEUCHÂTELOISES. CANTON DE NEUCHÂTEL, SUISSE.

Par Édouard Quartier-la-tente.

Cette découverte amena la généralisation des inspections médicales, dont le résultat était reconnu avantageux, tant au point de vue de l'éducation physique que du développement intellectuel de l'élève. Dès ce moment, dans la plupart des grandes localités, on éprouva le besoin de créer un service médical scolaire, et de procéder à diverses enquêtes fort utiles.

Rappelons d'abord que le Conseil Fédéral a organisé, sur la requête des sociétés pédagogiques suisses, depuis 1898, une enquête annuelle au sujet des enfants qui entrent à l'école primaire, afin de reconnaître les anomalies physiques et mentales et examiner la possibilité d'apporter des améliorations au sort des enfants reconnus anormaux.

Ces enquêtes ont été régulièrement faites dans le canton de Neuchâtel.

En 1906, nous avons procédé à une nouvelle enquête.

Le formulaire qui accompagnait la circulaire posait les questions suivantes :—

Y a-t-il dans votre commune des enfants souffrant—

(*a*) d'anomalies *physiques graves* empêchant l'enfant d'entrer à l'école ? (muets, sourds-muets, aveugles, infirmités graves des membres, maladies incurables de la peau, etc.) ;

(*b*) d'anomalies *mentales graves* empêchant l'enfant d'entrer à l'école? (idiot et faible d'esprit à un haut degré, épileptiques)

Quelles sont ces anomalies ? Les parents des enfants atteints de ces anomalies seraient-ils disposés à s'en séparer ?—etc.

Les réponses ont passablement tardé, mais toutes les communes ont fourni des renseignements très précis.

Nous n'avons mentionné dans cette liste que les enfants gravement atteints, mais l'examen des tableaux statistiques des années antérieures à 1906 nous fournit la preuve que nous pourrions certainement ajouter à ces chiffres bien des enfants dont l'éducation et l'instruction gagneraient à être faites avec un enseignement spécial. Examen fait de la situation et de la statistique des enfants anormaux dans notre pays, nous estimons qu'il y a quelque chose à faire et nous ne serions pas loin d'admettre pour l'appliquer à notre canton le vœu qu'un professeur formulait pour son pays, de voir tous ces enfants anormaux placés loin des centres populeux, au sein de la grande nature vivifiante et reconstituante, dans des fermes-écoles avec dépendances, dirigées par des ménages de pédagogues et un médecin.

Tous ces résultats sont dûs à l'organisation de l'inspection médicale scolaire, qui rend ainsi des services signalés.

Toutefois on éprouva dans les grands centres la nécessité de créer une *clinique scolaire*, et cela se fit tout spécialement à La Chaux-de-Fonds, à Neuchâtel et au Locle.

La Chaux-de-Fonds.—Avec l'ardente conviction des apôtres d'une bonne cause, MM. le Dr. Eug. Bourquin-Lindt et Ed. Clerc fondèrent le Dispensaire des écoles, corollaire du médecin, en déposant à la Caisse d'épargne, cette même année, une centaine de francs dont ils avaient la libre disposition.

Aussitôt un règlement fut élaboré et, malgré quelques préventions qui n'ont pas toutes disparu aujourd'hui, l'œuvre fit son chemin. Il serait difficile de supputer combien de maladies elle a enrayées, combien de déformations et de tares physiologiques ont été prévenues.

Voici ce règlement :—

Art. 1*er.* Le médecin des écoles a pour mission de veiller à l'amélioration des conditions hygiéniques des écoles en ce qui concerne : 1. les bâtiments scolaires ; 2. l'aménagement des salles de classe et de leurs dépendances ; 3. les instructions à donner aux membres du corps enseignant ; 4. les soins à donner à certains élèves.

Art. 2.—En conséquence il a spécialement les attributions suivantes : 1. il examine les plans des nouveaux bâtiments et donne son préavis ; 2. il veille à l'observation des prescriptions concernant le chauffage et la ventilation des salles, et donne son avis sur la réfection du mobilier scolaire ; 3. il donne aux membres du corps enseignant réunis en conférence des instructions leur permettant de reconnaître et de distinguer les premiers symptômes des principales maladies contagieuses et de donner les premiers soins en cas d'accident ; Il traitera également de l'hygiène et des maladies scolaires ; 4. il examine les élèves que les instituteurs envoient à sa consultation scolaire, pour vérifier s'ils sont atteints d'une maladie qui nécessite leur éloignement momentané de l'école. Éventuellement, il leur délivre l'attestation de maladie et la déclaration de guérison ; il examine les élèves que les instituteurs lui présentent comme devant etre libérés à teneur de l'art. 32 de la Loi sur l'enseignement primaire (élèves notoirement dépourvus d'intelligence) ; il donne des soins aux élèves malades que les instituteurs envoient à sa consultation scolaire parce que les parents sont hors d'état de les faire traiter. Le consentement des parents est réservé.

Art. 3.—Le médecin consacre à l'inspection des classes de la ville en moyenne une heure par semaine ; il visite les écoles foraines une fois par an.

Art. 4.—Il voue chaque semaine une heure à la consultation scolaire. A cet effet, il est mis à sa disposition deux salles du Collège primaire.

Art. 5.—Il fait au corps enseignant quatre conférences par an.

Art. 6.—Il procédera à toute visite ou inspection extraordinaire que la Direction du Collège estimera urgente.

Art. 7.—Le médecin adresse au Comité des Études un rapport annuel.

La réception des enfants signalés comme malades par les membres du corps enseignant, souvent plus clairvoyants que certains parents, et celle des faux-malades convoqués par le Secrétariat des écoles, s'organisa dès 1892 telle qu'elle est restée aujourd'hui, à cette différence près que les besoins s'étant multipliés, le personnel auxiliaire formé d'instituteurs et d'institutrices s'est augmenté dans les mêmes proportions.

Le vendredi à 11 heures viennent les enfants, généralement accompagnés des parents ou du maître de classe. Un registre, tenu avec la plus grande régularité et qui constitue en quelque sorte la fiche médicale des écoliers, renseigne sur les diagnostics antérieurs. Sous la dictée du médecin, la page s'enrichit du fait nouveau, tandis qu'un second secrétaire prépare l'ordonnance ou la déclaration, ou la lettre d'introduction auprès du spécialiste. Un service d'ordre, confié à des institutrices intelligentes et dévouées, remet au médecin les petits malades prêts à l'examen, de façon à ne pas perdre une minute ; si bien qu'on a pu voir jusqu'à 35 élèves défiler au cours de certaines séances. Il est vrai que ces séances-là se prolongent alors bien au-delà de l'heure réglementaire.

La policlinique scolaire, livrée à ses seuls moyens, ne saurait parer à toutes les éventualitiés ni supporter toutes les dépenses ; aussi le médecin s'est assuré l'aide de la " diaconnesse visitante " pour tous les cas ou des indications plus précises paraissent nécessaires auprès des parents et lorsqu'on n'ose pas compter sur leur bonne volonté.

Le Dispensaire général, jusqu'au moment où celui des écoles eut pris corps, et l'Hôpital ouvrirent, le premier sa bourse, le second ses portes, pour les remèdes et les soins que l'école ne pouvait distribuer elle-même. Puis M. le Dr. Bourquin s'adjoignit des spécialistes, M. le Dr. Borel, plus tard M. le Dr. de Speyr, comme oculiste, et M. le Dr. Schätzel, pour les maladies des oreilles, de la gorge et du nez. L'Asile du Repos (œuvre de charité privée) offrit généreusement son aide aussi. Enfin, poussé par les besoins que le service médical mettait au jour, le Directeur des écoles lia partie avec le médecin et provoqua la création des Colonies de vacances à Malvilliers. Pour le présent et pour l'avenir, la question d'un établissement destiné à recueillir les enfants anormaux, dont nous avons une bonne douzaine, est et sera l'objet de l'étude sérieuse du médecin scolaire et de l'autorité.

L'heureuse cohésion qui a existé de tout temps entre la policlinique et la Direction des écoles primaires, a comme excellent résultat un contrôle sévère des maladies plus ou moins simulées, et le nombre des absences de ce chef a sensiblement diminué ; de même les mesures destinées à arrêter le développement des maladies contagieuses, prises avec unité et ensemble, ont eu pour effet d'enrayer le mal aussi vite que les circonstances l'ont permis.

Depuis 1892 la statistique des absences inscrites sous la lettre *a* (maladie) se fait au moyen des bulletins médicaux hebdomadaires, et ces bulletins sont entrés aisément dans l'habitude du corps enseignant. Ils servent à dresser le tableau annuel des maladies constatées. Ce travail, minutieux et de longue haleine, pratiqué pendant une série suffisante d'années, permettra de tirer de nombreuses déductions utiles et facilitera certainement l'étude des maladies scolaires comme aussi leur prophylaxie.

Afin de rendre ce travail plus pratique et plus utile encore, les parents de tous les enfants pour lesquels il y avait un traitement ou une opération à conseiller ont été convoqués une seconde fois au Collège primaire et, sans obligation ni pression d'aucune sorte, mis au courant de l'état de santé de leurs enfants et invités à les soigner sans retard. Ceux dont la situation financière ne permettait pas cette dépense ont été heureux d'apprendre que le Dispensaire scolaire se chargeait en partie des débours.

Dès lors, chaque année, l'examen médical a donné à peu près le même pour cent d'enfants souffrant d'une infirmité quelconque, grave ou légère, mais presque toujours curable si l'on s'y prend assez tôt. Les conseils donnés aux parents en cette circonstance sont généralement suivis. Nulle part, dans le domaine de la médecine scolaire, les résultats ne sont en effet aussi immédiatement tangibles. Les événements dans la marche en avant du service médical scolaire ont été : en 1901, l'établissement des douches au Collège de l'Ouest, et en 1906 l'installation du médecin dans un cabinet *ad hoc* et pourvu d'un matériel élémentaire encore. Tel qu'il est, ce cabinet remplace avantageusement les salles d'école et, avec le temps, il complétera son outillage.

Le service des douches—gratuites, mais non obligatoires—reçoit chaque mois de 400 à 500 enfants et chaque douche coûte à la caisse communale cinq centimes. Le fonctionnement de l'appareil Linke est excellent. Le Collège futur des Crêtets en sera pourvu et M. l'Administrateur des écoles étudie la possibilité d'aménager un sous-sol dans ce but au Collège de la Charrière.

Une constatation pénible à faire à ce sujet c'est que, si les enfants des parents aisés ou riches se passent des douches parce qu'ils les ont chez eux, les très pauvres s'en privent aussi, hélas ! pour des motifs d'ordre intime qu'on serait heureux de voir disparaître. Y a-t-il aussi quelque prévention d'allure hydrophobique chez certains parents ? C'est probable. Quoi qu'il en soit, d'année en année, le contingent des petits amateurs de douches s'accroît très sensiblement.

Telles sont, brièvement résumées, l'histoire et l'activité du service médical chaux-de-fonnier. Etant donné son maigre budget (1,050 francs pour 1906, y compris les honoraires des spécialistes , le poste de médecin des écoles paraît infiniment peu de chose, mais l'importance des résultats obtenus dépend toute de la haute valeur de celui qui en a fait son œuvre et qui l'accomplit si simplement, avec une telle conscience.

Le Locle.—Nous devons au médecin scolaire M. le Docteur Trachsel, du Locle, les renseignements suivants.

Le Congrès suisse d'hygiène scolaire, réuni à Lucerne le 15 juin 1905, a discuté, à côté d'autres sujets, la question du médecin scolaire à la lumière de l'expérience. A cette occasion une controverse s'est élevée concernant le choix entre le médecin scolaire occupé exclusivement de cette charge, et celui pris dans le nombre des pratiquants de la localité. L'auteur de ces lignes pense que les deux modes d'organiser le service peuvent avoir leurs avantages suivant les conditions concrètes dans lesquelles se trouvent les écoles ; mais, en tout état de cause, il lui paraît incontestable que le médecin doit être secondé avec intelligence et bienveillance par le corps enseignant.

Un hygiéniste distingué et dont le temps n'est absorbé par aucun autre emploi que la surveillance de l'école, ne saurait, on le comprend, être présent partout et à tout moment. Or, il n'est nullement superflu qu'un œil vigilant et entendu soit constamment ouvert dans les classes, si les principes hygiéniques doivent entrer dans les journalières de la vie scolaire. Les visites relativement rares—nous avons une soixantaine de classes, dont onze dispersées dans la vaste banlieue—auront sans doute leur valeur pour en contrôler l'observation et pour veiller sur l'ensemble de l'état de la classe au point de vue hygiénique. Pour cette raison, elles ne doivent pas être de trop courte durée ; mais, dans les intervalles, ce sont les maîtres qui ont à s'occuper du service régulier.

Il leur faut, pour le faire avec la compétence nécessaire, une certaine somme de connaissances, se rapportant d'une part à l'anatomie et à la physiologie humaines, d'autre part à certains chapitres de la pathologie, en troisième lieu à l'hygiène générale, appliquée aux conditions spéciales des écoles. Comment ces notions seront-elles communiquées aux personnes faisant de l'instruction et de l'éducation de la jeunesse l'œuvre de leur vie ?

De plus en plus l'opinion se répand que les écoles normales doivent admettre dans leur programme des cours d'hygiène scolaire. Cela est logique, mais cela ajoutera à un labeur déjà énorme, et qui par lui-même

est déjà antihygiénique, un surcroît de travail sensible et peu désirable. Là où ce postulat est déjà réalisé, tout est dit, et tout ce qui nous reste à désirer c'est que les connaissances spéciales qu'on veut inculquer aux séminaristes ne dépassent pas la mesure de ce qu'ils doivent savoir. Il y a en effet certaines questions dans lesquelles la collaboration du corps enseignant n'est pas requise, comme par exemple les conditions de construction d'un batiment scolaire, et le programme de l'école normale ne doit pas être étendu sans utilité pratique : à ce sujet qui donne plus, donne moins.

Jusqu'à présent, d'ailleurs, l'enseignement de l'hygiène scolaire n'a été organisé que dans une partie, probablement dans la minorité des institutions scolaires en Suisse, dans le canton de Neuchâtel nulle part.[1] La chaire d'hygiène scolaire à l'université de Berne a été unique dans son genre et l'est peut-être encore.

Il est probable que la méthode de suppléer à cette lacune, créée au Locle par le médecin scolaire, se pratique ailleurs aussi et peut-être même avec des modifications heureuses. Malgré ses imperfections évidentes et sans doute nombreuses, elle nous paraît donner des résultats satisfaisants, et c'est ce qui nous a encouragé à en donner ici un exposé succinct.

Cet enseignement peut être partagé en deux parties, l'une théorique, l'autre pratique.

La première consiste à offrir au corps enseignant une série de conférences sur les divers chapitres de l'hygiène scolaire dans lesquels sa co-opération paraît nécessaire. Elles ne doivent pas être nombreuses et ne forment pas un cours suivi, pour ne pas trop absorber le temps restreint dont le personnel enseignant dispose ; mais elles doivent être substantielles et condenser toute la matière que celui-ci doit connaître. Le médecin scolaire, praticien en même temps, ce qui a dans tous les cas l'avantage de le mettre en contact plus intime avec la population, est ainsi en mesure d'accorder plus de soin à chacune de ces conférences. Celles-ci se donnent au corps enseignant à l'occasion de ses réunions périodiques, elles provoquent des discussions et forment ainsi un programme intéressant pour ces séances.

Les chapitres sont choisis suivant l'appréciation du médecin ; les connaissances anatomiques et physiologiques acquises dans les écoles secondaires suffisent. Nous pensons que les indications suivantes répondent à ce qui se fait chez nous et doit se faire partout :

Il est désirable de débuter par un exposé un peu général des principes d'hygiène, en indiquant plus spécialement les conditions où les enfants sont placés par l'obligation de suivre les écoles, et les devoirs qui, de ce fait, incombent aux autorités, puis au corps enseignant : tables bien construites, manière de placer les élèves, etc.

Un autre chapitre traitera des maladies contagieuses de l'enfance. Il sera parlé séparément des affections aiguës et des affections chroniques. Les affections tuberculeuses, celles des poumons en particulier, doivent être prises en considération dans ces conférences. Nous y reviendrons tout à l'heure à l'occasion de l'enseignement de l'hygiène pratique.

Puis nous mentionnons les recommandations à faire aux écoliers par les maîtres et maîtresses dans l'intérêt de la vie de tous les jours et de la famille. Elles concerneront la manière de se vêtir, de se nourrir, de

[1] Aujourd'hui, c'est à dire en 1907, l'hygiène est une branche obligatoire du programme des Brevets d'instituteurs et d'institutrices.

soigner le corps et les locaux habités, en un mot l'hygiène générale à domicile. C'est par l'intermédiaire des enfants qu'on atteint en général mieux les parents. Il est évident que cet enseignement, tout élémentaire et occasionnel, doit être introduit dans les leçons de choses, la lecture, l'histoire naturelle et d'autres branches encore. C'est de cette façon aussi que se donne cependant l'enseignement de la morale et que se livre à l'école le combat contre l'alcoolisme, chapitres non moins importants, qui doivent, par leur nature, faire partie de l'hygiène. La dernière adjonction de ce genre est formée par les conseils destinés à mettre la jeunesse au courant des causes et des effets de la tuberculose, ainsi que des précautions et des mesures nécessaires pour le prévenir. Le livret *ad hoc* distribué par nos autorités est très bien établi et recommandable sous tous les rapports. On peut craindre cependant un encombrement du programme véritable par tous ces accessoires ! Peut-être les classes et les écoles supérieures seraient-elles mieux placées pour ce dernier sujet, qui nous paraît cependant exiger des connaissances au-dessus de la portée des jeunes enfants ; pour ces derniers il sera sage de se borner aux règles de la propreté soigneuse, de la bonne aération, de l'alimentation saine. Ici encore, qui trop embrasse, mal étreint.

Il est évident que de temps en temps le cycle des conférences devra être repris, à mesure que le corps enseignant subit des mutations et se remplace. Pour le personnel qui est resté en fonction, ce sera alors un excellent cours de répétition.

Nous avons parlé plus haut d'une partie pratique de l'enseignement de l'hygiène. Nous entendons par là des rapports entre le maître et le médecin à l'occasion des visites dans les classes. Nous les faisons plutôt rares, mais alors à fond, et examinons avec le personnel enseignant la classe aux divers points de vue hygiéniques, depuis l'état de la salle, le chauffage, l'éclairage, la ventilation, jusqu'à la répartition des élèves d'après leur taille et leur vue ; puis vient la recherche des causes d'absences, la propreté, la tenue et les symptômes de maladies chez certains enfants. De cette façon seulement les visites ont une vraie utilité, surtout dans les localités où le nombre des classes est très grand. Les enfants trouvés malades sont signalés à leurs parents ; ceux que l'instituteur n'estime pas normaux, dans l'intervalle des visites du médecin scolaire, sont envoyés au domicile de ce dernier, examinés minutieusement et leur état est également porté à la connaissance de leurs parents, avec l'invitation de les faire soigner. C'est ainsi que nous remplaçons en quelque mesure le dispensaire scolaire, institution sûrement utile, mais qui exige un certain temps de la part du corps enseignant et des ressources que chaque localité ne saurait fournir.

L'hygiène n'est pas une science exacte ; elle a des principes immuables, mais leur application doit et peut s'adapter aux conditions spéciales où elle est pratiquée.

Neuchâtel.—L'organisation des inspections médicales scolaires à Neuchâtel date du 1er janvier 1895. Elle fut faite à la suite d'une conférence de la Commission scolaire avec une dizaine de médecins de la ville. L'idée de la création d'un poste de médecin fut approuvé à l'unanimité, et devait avoir un double but : améliorer les conditions hygiéniques des écoles, et régulariser en même temps le service des dispenses scolaires accordées à certains élèves pour raisons de sauté.

Le règlement du médecin des écoles est daté du 4 novembre 1895, et contient :—

Art 1.—La surveillance des établissements scolaires de Neuchâtel, au point de vue de l'hygiène, est confiée à un médecin des écoles. . . .

Art. 2.—Le médecin des écoles a en particulier les attributions suivantes :—

(*a*) Il donne son préavis sur les plans des nouveaux batiments scolaires, ainsi que sur toute réparation de quelque importance aux édifices actuels.

(*b*) Il surveille l'état sanitaire des classes et pourvoit à l'observation des règles de l'hygiène, notamment en ce qui concerne le mobilier scolaire, la ventilation, l'éclairage, le chauffage et le service de propreté.

(*c*) Il réunit, au moins une fois par semestre, les membres du corps enseignant pour traiter des questions relatives à l'hygiène scolaire. Il fournit en outre les indications nécessaires pour reconnaître les premiers symptômes des maladies contagieuses, et donner les premiers soins en cas d'accidents.

(*d*) Il reçoit ou délivre, s'il en est requis, les attestations médicales à l'appui des demandes de dispenses partielles ou totales de la frequentation.

(*e*) Il examine les élèves envoyés à sa consultation par la direction des écoles pour qu'il vérifie s'ils sont atteints de maladies nécessitant leur éloignement momentané de l'école ou la dispense de certaines branches du programme. Éventuellement, il délivre l'attestation de maladie et l'autorisation de rentrer à l'école. Ces consultations et ces déclarations sont gratuites.

(*f*) Il adresse à la Commission scolaire un rapport annuel et présente un préavis sur les questions qui lui sont soumises.

Le système de l'inspection médicale s'est rapidement amélioré et a abouti à l'organisation d'une policlinique scolaire qui rend les plus grands services.

Cette policlinique scolaire comporte une salle spécialement aménagée en salle médicale dans laquelle les enfants signalés sont l'objet d'un examen sérieux. Cet examen amène des découvertes d'anomalies physiques souvent ignorées des parents et dont la négligence aurait pu être préjudiciable aux élèves. Soignées à temps, elles peuvent être enrayées et même guéries dans une certaine mesure. On sait qu'il vaut encore mieux prévenir que guérir, et la policlinique permet d'envoyer certains élèves à des spécialistes, et de donner des conseils utiles qui sont communiqués aux parents.

La policlinique scolaire n'institue aucun traitement, ne prescrit aucun médicament, ceci afin de ne pas traiter les enfants contre le gré des parents, et pour que chacun reste libre du choix de son médecin. La consultation a lieu un jour fixé dans lequel les enfants suspects sont envoyés soit par les instituteurs, soit par les parents directement.

Les expériences faites jusqu'à ce jour prouvent que cette institution rend des services appréciables et il est certain qu'elle exerce une influence salutaire au point de vue de la santé des élèves et de la vie scolaire en général.

Le Canton de Neuchâtel n'a qu'à se louer de l'organisation de ses inspections médicales et des résultats très réjouissants obtenus à cette heure.

METHODS OF MEDICAL AND HYGIENIC EXAMINATION IN SCHOOL.

By Jos. Janele, M.U.Dr., and Cen. Moucka, M.U.Dr., Prague.

(*Translated.*)

Until very recently public authorities have confined their supervision to the means and methods of instruction and to the state of the school buildings. But during the last three decades the opinion has prevailed that it is also of great public importance to examine the condition of health of each individual child who enters the school, and to watch over it during the whole period of school attendance. This is on the following grounds :—

1. Even the best hygienic arrangements, which might be sufficient for children of normal, average health, are inadequate for others who may be labouring under a tendency to certain maladies or to hereditary disease. It is therefore necessary to make exceptional allowances for such children—*e.g.*, to excuse them from attendance at gymnastics, or singing, to lighten their tasks, etc.
2. Many children are incapable of attaining the required standard if they have special defects of vision, hearing or understanding, which have not been recognised at the proper time and have remained uncared for.
3. It is absolutely neceesary to know each child's state of health during the epidemics. Prior to the institution of special school physicians the public authorities had already made some provision in cases of acute infectious maladies, as the public interest demanded preventive measures ; but cases of chronic infection, or of transferable parasitic disease—*e.g.*, pediculosis, scabies, etc., have also to be considered.

Medical inspection of school children was introduced at Prague in 1883. Children who have any defects and need relaxation in their studies are examined at the beginning of every term. In 1886 an attempt was made to examine all children on their first admission to four of the communal schools of Prague, but since 1904 continuous supervision of the public schools has been instituted and special school physicians appointed, who are bound to keep a medical record of all pupils entering the school, and to exercise regular supervision over their health. Examination in 1886 was performed by the district physicians, to whom these four schools were assigned, but there is no systematic report of their proceedings, or of the final result.

To estimate the value of the entrance examination it is necessary to consider its purpose, which is to ascertain the fundamental diagnosis, in order to be able to advise the teacher and to suggest to the parent the best line of treatment. The methods of inspection are only modified from ordinary clinical examinations to suit school conditions, and the aim of the examination is to ascertain the development and defects of the various physiological systems.

The examination of defects of speech is simple and obvious, and that of the mental faculties at the commencement of school attendance of little importance, except in the case of congenital physical defects, which can be discovered at first sight, and wherever special statements are to be given—*e.g.*, when children are to be transferred to auxiliary schools

their condition is to be examined according to clinical methods, and the observations of the pupil's teacher are to be taken into consideration

The general physical equipment of the children is not estimated as an independent factor, though a minute and exact record of the condition of the various physiological systems is registered. In our opinion the quality of the constitution can be expressed only in numbers, according to the proposition of O. T. Koppe, in Russia, although it cannot be denied that the classification of the separate components would be given according to individual opinions without regard to a fixed rule, and would therefore lose its general value. Systematic anthropometry would prove of great service in the event of any classification of the children's physical development, but such measurements are only useful if every pupil is measured and weighed at regular intervals. Our experience at Prague is not yet complete, because all the measuring and weighing is assigned to the physicians, who can do it only when the children enter the school, and have no subsequent opportunities for repeating the test, although it could be carried out in the hours allotted to gymnastics.

In examining the cavities of the children's mouths no spatulas are used, as they could not be disinfected with absolute security. The risk of transferring disease is not very great, but the use of this method might give a handle to the opponents of medical inspection in general. The same reasons forbid any examination of the cavity of the nose and throat with the fingers, and it seems, on the whole, notwithstanding the lack of sufficient experience, least objectionable to draw out the child's tongue by means of its own pocket-handkerchief whenever inspection of the back of the cavity of the mouth is otherwise impossible.

Careful examination of the teeth has been made, and it was found sufficient simply to ascertain the quality of the various teeth without recourse to special classification. Although the general health of the body depends in many respects on the condition of the teeth, nevertheless it could not be proved that dental disease was a direct impediment to education, nor, on the other hand, that non-attendance at schoo was casually connected with dental disease.

The eyes have been very carefully examined for external diseases and for squints, and the examination is not altogether superficial, as usually happens in school work. For instance, if an injected conjunctiva is found, the corpus ciliare is examined, and, if necessary, the tension tried, and registered after the usual clinical method. If an irregularity of the curvature of the cornea is suspected, it is simply tested by the reflection of the window-frames. The state of the anterior chamber of the eye is examined only in cases of abnormal depth or contents. In the first year of their work the physicians registered also the colour of the iris, but now only pathological conditions and interesting cases of abnormality are considered. When irregular pupils are found, a description of their form is given, and in cases of synechiæ their causes are inquired into in the anamnesis. The greatest care is given to the examination of the lens as far as it can be conducted by simple inspection without the aid of an ophthalmoscope. As soon as the children have learned to read, their visual acuity is examined by means of Snellen's test-types or Prof. Schöbel's optotypes. The refraction is examined in the usual way, and if some irregularity is discovered the eye is examined subsequently with near types according to Jäger. By this double examination an approximate

diagnosis of myopia, hypermetropia, astigmatism, amblyopia, and other defects, can be made, which is important for school purposes. Minute examination by means of an ophthalmometer or ophthalmoscope, etc., is impossible, for lack of a suitable room, and also because too many children are assigned to the care of one physician. If a disease is discovered the physician refers the child to a specialist, or, if it be poor, to the public hospital.

The examination of the ears is confined to testing the hearing by the spoken or the whispered word from a distance of 8 metres, according to the common clinical method. If irregularities are perceived the physicians investigate the cause; and though at first adenoid vegetations were examined by palpation, this has been abandoned, because it was disagreeable to the children and met with opposition from parents, and the diagnosis of adenoid vegetations is made simply as a result of the discovery of imperfect hearing and of inspection of the cavity of the mouth and of the nasal passages. No specula are used, but diseases of the ear or nose are surmised. The children are referred to their family physician or to the hospital.

Summary.—The methods employed in medical inspection aim principally at ascertaining the state of health of the school children, and do not essentially differ from ordinary clinical methods, being only modified in view of their special purpose. Minute technical research does not suit the purposes of school hygiene, especially when the use of instruments would be necessary to ascertain all the clinical details.

The means employed in the examination consist chiefly of inspection, palpation, auscultation, and percussion, and the principal aim is to ascertain the development of the muscles and nutrition, the system of the bones and joints, the state of the blood, diseases of the skin, skin parasites, the state of the lymphatic glands, of the external eye and ear, of the lungs, heart, and the abdominal organs, the nervous system, defects in the development of the body, of the speech and mental faculties.

The classification of the general health is difficult. Anthropometrical measurements are useful, if systematic. In examining the cavities of the mouth, the nose and throat, no spatulas are to be used.

In judging the state of the teeth a simple ascertaining of their quality is sufficient; a special classification is unnecessary.

The visual acuity is ascertained provisionally by means of Snellen's tables, and the quality of the hearing by loud speaking and whispering, according to the usual clinical methods.

The following resolution was passed:—

"Whereas the maintenance and development of the health and vigour of school children is a matter of paramount importance, and whereas experience in all large cities has shown the importance of health inspection, be it resolved that in every city and town adequate provision should be made both for sanitary inspection of schools and for medical inspection of school children, the latter to include not only inspection for contagious diseases, but also of eyes, ears, teeth, throat and nose, and of general physical condition."

MEDICAL INSPECTION OF SCHOOL CHILDREN

By Dr. Alfred Greenwood, M.O.H., Blackburn.

Blackburn has a population of nearly 134,000, of which about 40,000 are employed in the 128 cotton mills of the town. These employees consist of 15,000 males and 25,000 females approximately. There are fifty-two public elementary schools in the town, attended by upwards of 20,000 children, of whom a certain number are half-timers, *i.e.*, they work half the day in the mill and attend school the other half of the day.

No system of medical inspection of school children can be a success unless the cordial assistance of the teachers can be secured, who should have a knowledge of school hygiene. For their benefit lectures and demonstrations should be given by medical men who themselves ought to be well versed in the physiology and psychology of educational methods, the relations between medicine and child study, and fully alive to the many problems which arise in connection with mental deficiency, defective eyesight, defective hearing, infectious diseases, etc.

The first step which was taken in the medico-educational work of Blackburn was the preparation of a detailed report in 1903 giving a description of the structure and sanitary conditions of the public elementary schools of the town. An immense number of sanitary improvements have been carried out since then. Another report was then prepared showing the behaviour of the various infectious diseases at all the schools for a number of years previously.

Three annual reports have now been made, but as medical officer of health I found it impossible to carry out any systematic examination of school children, and an assistant was appointed to give his whole time under my supervision.

He began a systematic medical inspection of children at two schools in the town representing the worst and the best schools. This examination was very complete, and occupied a considerable time. Many defects were found; but after an examination of 400 children, the results of which will appear in a future report, I decided to alter the line of action, as it appeared to me that more useful work at the commencement might be carried out by ascertaining in a more rapid manner how many children were suffering from certain defects.

Therefore an investigation was instituted into the eyesight of Blackburn school children. The visual acuity of 2279 children has been tested by the class teachers, under the supervision of my assistant, who demonstrated the correct methods, and tested the subnormal cases himself. The defects amounted to 23 per cent., and though the parents have been informed, very few have been remedied.

A stammering class and also a special school for sixty mentally defective are doing very good work in the town.

ORGANISED MEDICAL SUPERVISION OF SCHOOL CHILDREN.

By H. Meredith Richards, M.D.

This paper shows how medical inspection of schools has been co-ordinated with the work of the medical officer of health in the borough of Croydon. The medical officer of the Education Committee is assisted by three women health visitors, who have various additional duties in the health department, and one clerk. This staff has beeen responsible for the medical inspection of thirty-two elementary schools and about 22,000 school children ; and the medical officer is also medical officer of health for the borough. In the case of epidemics the medical officer has the assistance of one sanitary inspector and of one of the medical officers of the fever hospital The partial services of specialists are retained for particular investigations. The health visitors attend the schools and visit the children's homes to give advice and to obtain information

Procedure in schools deals with infectious diseases, verminous conditions, ringworm, and routine medical examination. The routine examinations are only made in part of the borough pending an increase in the staff. The first routine examination takes place when child enters school, and is usually a superficial examination, except in selected cases. The subsequent routine examination, which is more searching, takes place when child enters higher school; abnormalities are discovered, and, if treatment required, the health visitor goes to the home and suggests that the child should be under medical treatment, and herself gives advice on matters of domestic hygiene. Special supervision is carried out every six months and supplementary examinations are held from time to time as to mentally and physically defective children. A card-index system has been instituted for the keeping of records. The medical officer holds a conference with the health visitors and superintendent of attendance officers twice a week. The medical supervision at Croydon is adapted to local conditions.

With regard to treatment, efforts should be directed chiefly to raising the standard of health of the children generally. The assistance of the teachers and supervision in the homes are necessary. The local authority should relieve the overpressure of hospitals by undertaking the treatment of those diseases for which private and public provision is at present inadequate. The school organisation should be in touch with a local Guild of Help.

DER SCHULARZT IM HAUPT- ODER NEBENAMT?

By Dr. Adolf Tuba, *Schularzt und Professor der Hygiene, Budapest.*

Einigkeit ohne Widerspruch herrscht über die Notwendigkeit der Schulärzte. Der Frage ob Schulärzte im Haupt- oder Nebenamte angestellt werden sollen? Im ersten Falle sind sie Beamte ohne ärztliche Privatpraxis, im letzten Falle hingegen leben sie eigentlich von der Privatpraxis.

Verfasser kommt aus seiner ungarischen Erfahrung zu den folgenden Schlüssen:

(*a*) Im allgemeinen sollen die Schulärzte im Nebenamt angestellt werden.

(*b*) Die gewesenen Schulärzte sollen mitglieder der schulhygienischen Kommissionen werden;

(*c*) Ausnahmsweise können Schulärzte im Hauptamte ernannt werden.

(*d*) Von den Schulärzten ist auch in der Zukunft die Behandlung der kranken Schüler in Verbindung mit der Schulpoliklinik zu erwarten.

MEDICAL TREATMENT AT SCHOOL.

By John J. Cronin, A.B., M.D., Ph.D., New York City.

Society demands protection from contagious disease, and holds the public authorities responsible if proper protection is not given. Since March, 1897, New York City (as I have described elsewhere) has endeavoured to afford this protection by means of medical inspection of schools, but this has not proved adequate. Treatment at school is the natural corollary, and it is the purpose of this paper to justify treatment at school, not only by results, but also on social, economic and professional grounds. About one sixth of New York's children have undergone thorough physical examination, but treatment has been confined to a few conditions in about one-third of the 162 schools, and it is of the latter that I wish to speak.

Under the old system of inspection, which was organised by the Department of Health, and which obtained from March, 1897, to September, 1901, all contagious conditions were recorded on a class index-card, and on subsequent inspection were allowed forty-eight hours' grace, and if not, within that time, under treatment were at once ex-

cluded. The number of exclusions were enormous; some of the schools were depopulated by half. This created the most bitter and strenuous opposition from the Board of Education. The Department of Health was accused of interfering with the compulsory educational law, and was indeed responsible for much truancy, with its consequent illiteracy. Many of the conditions thus excluded by the Department of Health could safely be allowed to attend school, provided that proper and regular treatment was obtained.

It was then discovered that, in the case of minor skin and eye diseases, the directions of the private or hospital physicians were either not intelligently carried out at home or were entirely ignored; and the experiment of having this local treatment applied at school by a competent nurse was tried. The experiment was a success; and more nurses were appointed and assigned to those schools where the exclusions were most numerous. There was no objection to this system of treatment at school; it was, on the contrary, most highly commended by principals, teachers, parents and children. All treatment is given according to the written instructions with which each nurse is supplied. The diagnosis is made by the medical inspector, and the nurse learns it from each child's card. The following conditions alone are treated by the nurse at school: pediculosis, ringworm, scabies, favus, impetigo, molluscum and conjunctivitis. Trachoma is never knowingly treated by the nurse, but these cases are frequently excluded and visited at home by the nurse, who advises the parents of the necessity of continued and regular treatment.

In the schools to which nurses are assigned, experience shows that little help may be expected from the parents in providing and keeping the children under proper and regular treatment. Considering that trachoma, pediculosis, ringworm and favus are most persistent conditions to cure, not only one school day, but many are lost by exclusion. Failure by parents to provide treatment has resulted in a fine being levied by a police magistrate for noncompliance with the compulsory educational law, in that adequate treatment was not provided so as to enable the child to remain in attendance at school.

The result of establishing treatment at school for these minor contagious diseases makes it now only necessary to exclude the major contagious diseases. The exclusions have been reduced about 99 per cent. It has saved the city a considerable sum of money, and above all it has annulled all the obnoxious features of wholesale exclusion which were instituted by the Department of Health, and which, if continued, would undoubtedly contribute to truancy and illiteracy. However, if we merely limit our remarks to the fact that no less than 24,000 children were excluded during three months, under the old system of inspection, in 1901, the economic value of treatment at school for the minor contagious diseases is apparent. It is estimated that the *per caput* tax for educating a child in New York is $40.00 a year, or about 20 cents a day. These 24,000 exclusions for one day only represent, therefore, a waste of $4800 in three months; but a loss of ten or fourteen days in any one school term means that the child must repeat this term, and for every child who is kept back one term there is a loss of $20.00.

The cardinal principle governing the action of the Department assumes that it is the function of the Department to protect the community

against the individual, and on the other hand to protect the time and education of the individual. To compass both these aims at once, the Department provides treatment at school for contagious diseases. No one has gainsaid its authority to do so, and professional opinion has acquiesced. However, this has not been the case with the treatment of trachoma and non-contagious physical defects.

TREATMENT OF TRACHOMA CASES IN SCHOOL.

A census of all the schools in the fall of 1902 showed 17,000 cases of trachoma in the schools, all of which were recorded and compelled to obtain treatment. This large number, thrown all at one time on the clinics of the city, proved rather overwhelming, and where the cases occurred in largest number the facilities for treatment were least. The dispensaries rightly objected to such numbers with contagious eye disease coming to their clinics and exposing the other patients to risk, and the surgeons generally did not have time to give documentary evidence that children had received treatment. It was decidedly a matter for the Department to deal with. It was right to compel these children to receive treatment, and if the physicians and dispensaries would not, or could not furnish treatment, the Department must do so, that the child might not lose a year of school time. Two eye hospitals and dispensaries, under the control of the Department of Health, were opened, and all cases from the school, not already under private treatment, were referred to these institutions. The staff in these institutions consists of one ophthalmologist in charge and seven medical inspectors. These city hospitals produced much better results than the private dispensaries, but they only afforded very inadequate means for treating all the cases properly. Being located at extreme ends of the island, and on the east side, they are not conveniently accessible for the school children of the west and central portions of the city. From these latter sections many requests were made to allow the inspector in charge of the school to treat these cases at school with the assistance of the school nurse.

The experiment of treating these cases at school was tried in 1905 and 1906. Seven medical inspectors were appointed with special training at ophthalmic hospitals and dispensaries. Any cases of trachoma they recorded were re-examined by a Department oculist to make doubly sure of diagnosis and necessary treatment. The names of the children were recorded, as well as the treatment recommended by the specialist, *e.g.* the use of blue-stone, alum, or argyrol, or the necessity of an operation. The Department oculist remained in charge at each school until each inspector was found qualified to do the work properly, who then appointed certain days and hours to treat the cases twice a week in each school.

A school monitor was appointed to notify the trachoma cases to report for treatment. Each child treated was recorded, and the child at once returned to his classroom. Any absentee was sent for on the day he returned and treated. The nurse prepared the solutions and the supplies, and assisted the inspector by holding the head of the pupil.

The advantages of this system were :—

1. There was no loss of the child's time at school.
2. There was regularity and uniformity of treatment.
3. A precise record of all cases was kept.

4. There was less difficulty in ensuring operations at an advanced stage.

5. There was more perfect co-operation and sympathy on the part of principal and teachers, as well as confidence between patient and medical inspector.

The data gathered in the course of this work are all the more valuable as they may be used for a comparative estimate of the real benefits of treatment at school with those of treatment outside school on a large scale.

The cases treated at school were those who were formerly excluded; even the small number treated prevented a loss of public money more than sufficient to pay the salary of the inspector. Cases discovered at an early stage, and kept under strict treatment, prevented much later suffering from operable trachoma. Proper systematic treatment in schools, whereby all cases needing operation were urged, or compelled to attend for operation in each school, one after the other, would certainly do more to eradicate trachoma than the unsystematic, uncontrolled method of treatment which now obtains at the dispensaries. Cases of re-infections occur too frequently, because a child, after an operation, or after treatment, is compelled to sit next to a child who is not under treatment; and, excluding operations, treatment at school showed even better results than at the city hospitals on account of the greater convenience and non-interference with school routine. Although the treatment of trachoma has not been extended to all schools, enough has been accomplished in sixteen schools to warrant this report.

However, the Department has been faced by many awkward problems.

1. There was opposition to the system on the part of otherwise well-disposed physicians and dispensary authorities as establishing a bad precedent.

2. The work of the inspector did not admit of ready and regular supervision. This gave rise to the fear that the work could not be done as efficiently in a school as in a dispensary under the supervision of an expert.

3. The school building was not a proper place for treating contagious disease, and seldom afforded even tolerable facilities for carrying out the work.

For these reasons, after six months' experimental work, the officials ordered that all treatment of trachoma at school should be discontinued. The Department hospital and dispensaries are so correlated to the schools in the matter of trachoma treatment that, unless distance is an insuperable impediment, all the advantages are obtained, and at the same time the objection to the Department inspector's carrying out the treatment is eliminated. The solution of this very vexatious question, which provokes opposition from school authorities on the one hand, and the medical fraternity on the other, lies in obtaining a larger appropriation of money to establish hospitals in various districts throughout the city. There is very little lack of disposition on the part of parents and children to get treatment, provided that facilities are reasonably available, but when car fares have to be provided, and the time of both parent and child is lost in travelling and waiting at the dispensaries, it is not surprising that neglect of treatment prevails.

TREATMENT AT SCHOOL FOR NON-CONTAGIOUS CONDITIONS AND PHYSICAL DEFECTS.

Treatment at school for non-contagious conditions and physical defects, whether it be the provision of glasses or the removal of tonsils and adenoids by operation, will not be undertaken under the supervision of the health authorities for any reason whatsoever. The Department will only sanction the finding of defects and notify the parents to have the defects remedied by their family physician. Our experience, therefore, in this respect is limited, but the results obtained from one or two experiments are instructive.

In one school there were 150 backward children; each pupil was found with adenoids, hypertrophied tonsils, defects of vision or of nutrition, alone or combined. In six months, at the expenditure of much time and labour, and after much travelling to and from dispensaries, sixty-six cases were attended to. Of these, thirteen had glasses fitted and 53 had tonsils, adenoids, or both, removed. Arrangements were then made with the City Superintendent of Schools, and the authorities of the Mt. Sinai Hospital, and eighty-four children, with parents' consent, were operated on at school for adenoids and hypertrophied tonsils within the space of two hours. An investigation six months afterwards showed that these backward children had greatly improved physically and mentally, as shown by their promotion to higher classes and their high marks for conduct, effort and proficiency in new grades.

The ideal system is that private physicians should do the work, but in this case the physicians must realise their obligations to the public authorities. Moreover, there is a great deal of parental neglect which must be overcome, though this is less noticeable in the case of industrial schools, where there is greater co-operation between principals and the medical inspectors, and where the principals can more readily influence the parents. In the case of one industrial school 95 per cent. of the children went to the dispensaries for treatment, whereas less than 50 per cent. of the defectives at one of the public schools obtained treatment. There are various causes for such parental neglect. The parents may be either honestly too poor, or, on the other hand, too pauperised, too thrifty or too ignorant to afford the time and money necessary to obtain treatment.

During the fall of 1904 seven oculists were assigned to test the vision of school children in various districts throughout the city; the result showed 34,000 children examined: 9100 with defective vision, or about 30 per cent.

The parents were notified of the defects by cards stating the nature of the defect, and advising them to obtain immediate treatment. A report was compiled three months later which showed that, of 7221 who were re-examined, 1624 had already procured glasses, 1565 were under treatment for glasses, and 574 were about to procure them. These figures prove that about 52 per cent. showed a marked disposition to follow the advice of the inspector and consult the family physician. In the better class of families the advice was followed at once, and many letters were received at the Department commending the work, and many reports were received from principals and teachers describing the improved conduct and proficiency of the children who were fitted with glasses.

It may be assumed then that 50 per cent. of the parents will attend to their children's defects; furthermore, recent investigation of some 200 cases shows that about 8 per cent. of families are too destitute to pay in any way for glasses, about 15 per cent. would pay on the instalment plan, while three-quarters of those who do not provide glasses will not pay for anything if there is a possibility of getting it free. These parents must be educated in self-respect and independence, and, if still neglectful, they must be forced to do their duty. A short period should be granted, and if the necessary treatment is not obtained, the State must interfere. The wants of the child must be attended to first, and the financial condition of the parents investigated afterwards.

The proper solution of the question of treatment at school, and the one which will eradicate abnormal conditions and embarrassing predicaments, lies in the fact that the educational authorities require that all children be physically perfect before they are admitted to school. The child will not be accepted at school until the physical defects found by the inspector have been attended to properly. This will make it obligatory on the parents to consult their family physician, who in turn must co-operate with the authorities.

At present, however, we have a larger percentage of children in school who urgently need attention. It is unjust, both to the children and to the city, that they be neglected. It costs a great deal of money to provide education for these children, and they are too defective to benefit by study.

About 50 per cent. of these children will be attended to by notifying the parents that they need treatment; the other 50 per cent. offers a very serious problem.

How can we compel parents to have these children attended to? How are the lowest class of poor to be attended to? By private physicians remunerated by the city, or by physicians employed for that definite purpose?

The Department should have some supervision over the treatment of these children. As a private matter, the solution of the question would be simple, but as a municipal affair it is extremely difficult. All alike, physicians, statesmen and general public, must see the value of providing for the physical well-being of future generations. Physicians particularly must help along the work.

At present let the State find the defects and the physicians correct them; conjointly then we shall work for a higher type of moral, mental and physical manhood.

DIE ERRICHTUNG VON SCHULPOLIKLINIKEN.

Von Dr. Med. Friedr. Stocker, Augenarzt,
Präsident der Schulhgg. Kommission der Stadt Luzern.

(*Auszug.*)

Die Schulpoliklinik ergänzt die moderne schulärztliche Aufsicht in fruchtbringender Weise. Sie kommt dem Postulate entgegen, dass die schulärztliche Arbeit praktischen Nutzen für Kind, Eltern, Schule, Staat zu Tage fördern soll.

Das Bedürfniss von Schulpolikliniken ist vor allem geweckt worden durch die Unvermögenheit und Nachlässigkeit welche die Eltern veranlasst, den Winken der Schulärtze nicht nachzukommen.

Mit dem Erkennen der Fehler an Körper und Geist der Schulkinder ist es nicht getan ; es soll auch das Uebel bekämpft und der Heilung entgegen geführt werden. Das Nichtbeachten schulärztlicher Räte schadet (1) *dem Kinde* durch eventueller Herabsetzung seiner spätern Erwerbsfähigkeit, seiner Leistungsfähigkeit in der Schule, (2) *der Schule* durch Vermehrung der Absenzen und Störung der Disciplin, sowie des Fortganges des Unterrichts, (3) *dem Staate* durch Schädigung der Gesundheit der Jugend und eines kräftigen erwerbsfähigen Nachwuchses.

Die Schulpoliklinik als soziale Wohlfahrtseinrichtung soll für alle Schüler und Schülerinnen der obligatorischen Volksschule unentgeltlich sein. Das Institut nur den Bedürftigen zu öffnen leistet Schwierigkeiten wegen der jedesmaligen Qualifikation als Bedürftiger im Einzelfall.

Dem Missbrauch der Poliklinik kann durch eine Ausweiskarte gesteuert werden.

Die Schulpoliklinik ist kein Obligatorium ; nur wenn Parasiten vom Elternhause nicht beseitigt werden, wird das Kind zur " Zwangsreinigung " der Poliklinik überwiesen. Hierzu hat der Staat das Recht und die Pflicht. Diese Massregel ist in vielen Städten der Schweiz schon eingeführt.

Die Schulpoliklinik besteht aus einer *Allgemeinen Schulpoliklinik* und einer *Zahnpoliklinik.*

Es werden nur ambulante Fälle behandelt, wie Hautkrankheiten, leichte Fälle der Ohren- und Augenheilkunde, der kleinen Chirurgie, Konstitutionskrankheiten wie Anaemie, Scrophulose, Rhachitis.

Rezepte werden an Kinder abgegeben, aber der Apotheker wiederholt sie nur wenn ein Reiteratur-Dosis des poliklinischen Arztes darauf steht.

Neben Rezepten verabfolgt die Schulpoliklinik noch Utensilien wie Brillen, Schutzbrillen, Bruchbänder, Zahnbürsten etc.

Die Schulpoliklinik macht den Aerzten keine Konkurrenz, sondern wirkt im Gegenteil erzieherisch auf Eltern und Kinder im Sinne einer frühzeitigen Fürsorge für die Gesundheit und Gewöhnung an Reinlichkeit.

Der schulpoliklinische Arzt macht in dieser seiner Eigenschaft keine Krankenbesuche.

Solche Schulpolikliniken sind namentlich notwendig für Städte, die keine Universitäts- oder Stadtpoliklinik besitzen.

THE LIMITS OF THE FUNCTIONS OF THE FAMILY AND THE SCHOOL IN RELATION TO MEDICAL TREATMENT.

By Rev. H. Iselin.

The medical supervision of children is necessary. The provision of this necessity by the State can be justified by two considerations: (1) The guardians of the child can be reasonably presumed to be unaware of any possible infirmity; if they are aware of "something wrong" they are too ignorant to realise its importance. (2) And the State is too vitally concerned with the health and morals of its citizens not to insist that the administration of education shall know how far all children can benefit individually from the schooling which is offered to them.

Moreover, when the defects have been brought to light, it would appear to be a child's right that they should be made good as far as medical science can effect this. It is the object of this paper to discuss how far the responsibility for the duty should devolve upon the family or the school.

That this responsibility should fall entirely on the family is the first and obvious answer. In England our Education Acts presume that children come to school in a condition which makes instruction possible; and many families—I should say the very large proportion of parents—are prepared to assume this duty without demur. But, as medical supervision becomes more extended, cases are discovered, mostly drawn from the poorest class, where the children do not receive the attention which medical science demands. The cause may be the inability or neglect of the parents. On the one hand, the breadwinner may be out of work; or, again, shiftless extravagance or drunken habits may have left money sufficient only for the barest necessaries of existence; and the State, starting with school as its base of operations, is expected to supply the deficiency.

This is the state of affairs which is constantly before us in East London, and the condition of things in other poor quarters is probably in no way different. Children have their eyes examined. They are found to be defective, and spectacles are necessary. The medical inspector returns after three months and finds that about 3 per cent. have complied with the demand. What is to be done for the rest, and who is to do it?

The answer, "If the parents will not or cannot, the school must," has a superficial plausibility; it seems to follow logically from the accepted theory that education should be compulsory and free. If the child must be educated, it must be made physically fit to be educated; indeed there is no logical stopping point: free meals, free clothes, free maintenance.

This method of reasoning was exposed twenty years ago by the opponents of free education; but with regard to the present issue I think there may be said to be a logical stopping point. Education can be more easily and more advantageously provided by the community than these other things.

What a child eats is a more intimate consideration than what he learns. It can be provided, and has been so provided, in the atmosphere

of the family. The parent has recognised this duty, and its neglect is justly stigmatised by the conscience of a civilised community. That part of education (for it is by no means all education) for which the school stands may well be a matter for State control and State enforcement, while other forms of the care of children may be left to the thought and the energy of the family.

The primary object, indeed the *raison d'être* of the school is education. Medical supervision discovers what children are educable; it may point out where and in what way certain children are uneducable through mental or physical defect; it may even suggest the necessary remedies. But there, I submit, the function of the school with regard to medical treatment ends. If the remedy be not applied (I cite, for example, if the spectacles which the doctor has ordered for a child be not forthcoming) he must be excluded from school until he is in a fit state to take advantage of the education offered to him, and if education be compulsory the guardian of the child should be summoned before a magistrate for his non-attendance.

Any further development of medical treatment at the school is fraught with evil consequences in three directions:—

1. It is bad for the child. If the family is the true environment and the pervading atmosphere of the child's life, it is in that environment and through that atmosphere that his needs must find their satisfaction. The education which is given at school is a slight factor in his future career in comparison with that which he receives from his home. If that education is no conscious upbringing, but only a dragging up, without love and without system, it is still an education or a method of schooling which leaves upon its recipient an impression of neglect.

Science has taught us the tremendous importance of the early years of childhood in the making or the marring of a man. The most lasting impressions are those which are formed in the home, and it is surely in the highest degree detrimental to the child that he should look upon his family surroundings with any feelings except those of affection and respect. If the child is ill his first emotion is to fly to his mother for assistance and for comfort, and this emotion is right and reasonable; and if his parents are ready and willing and able to nurse him through his sickness it will bind him to his home; his love and respect for them will deepen because of those acts of unselfishness and self-denial which his illness involved, and his infirmity will be to him a means of education in loving-kindness which he will bear with him through life. Further, it is the poorest class of child who will need medical treatment in the school. Bad nursing, insufficient and improper nourishment leave effects upon the children which medical supervision is not slow to detect. Such a child is least at home. Already through the provision of halfpenny dinners, fresh-air funds, free meals and boots, he is looking to outsiders more and more for help. If to this also is added free medical treatment at the school; if even in such exceptional weakness and distress he may not ask assistance from his parents, that little love and respect which he has now for his home will entirely disappear.

In the second place, it is bad for the parents. Many children need medical treatment owing to parental irresponsibility.[1] If such treat-

[1] A census of admissions to a hospital for hip disease resulted in 50 per cent. being ascribed directly to parental neglect in infancy.

ment be given at the school without inquiry and without stigma, they can and will imagine only too easily that all expense and all duty connected with the child's well-being may be thrown upon others. There are those parents who find it a struggle to clothe, feed and tend their children; only by rising early and by working far into the night can they make both ends meet. Already these well-meaning parents complain that charity reaches only the children who come to school ragged and dirty; almsgiving, as often administered, has become a premium on the neglect of parental responsibility; and when to medical supervision is added medical treatment, supplied from the school at the expense of the rates, almost the last inducement to the parent to look after his child will have been removed. Because some few parents cannot or will not fulfil this, the most obvious of all duties, it is now proposed to take the right away from all others. While it is a duty, let us never forget that it is also a privilege, of which we cannot rob our parents without grievous wrong to the family, and all for which the family stands.

In the third place, it is bad for the teachers. If the evils of free medical treatment are to be minimised, there must be discrimination between those who can and those who cannot afford to pay. This discrimination involves time and trouble; how great the time and trouble involved becomes apparent to those who try to do any kind of charity conscientiously and well. Voluntary agencies are insufficient to do this work as it should be done. It is easier and more comforting to the personal emotions to give with unwise inquiry than to refuse after careful investigation. And the line of least resistance will be followed. Any assistance for purposes of knowledge of the child's circumstances will be welcomed, and the head teacher will be asked for his knowledge. He is the permanent official; he is always on the spot; he is credited with a supernatural knowledge of the children's home surroundings and circumstances; the work is more and more left to his discretion and initiative until, what with boot supplies sent from one well-meaning newspaper, and money for free breakfasts sent from another, he may well ask himself if he has been appointed for the administration of a place of education or as a relieving officer.

This is the state of affairs with regard to the relation of the home and school in England at the present time; and the reason of the *impasse* is not far to seek. The sanctity of child-life has been impressed more and more forcibly on this generation; the children have been shown to have in them potentialities varying directly with their nurture and their upbringing. And, in contrast with this, social investigators and philanthropists meet constantly women who have borne ten children and lost six, who have their grandmother's ideas with regard to feeding, training, and the rest; who know no ideals, have no reverence, and are inspired with no hope with regard to themselves or their offspring. The result on the children of this environment is discovered on its physical side by medical examination and supervision. Facts concerning national degeneration and decay, examples of the stunted bodies of slum children, statistics of disease of all kinds are hysterically produced, and it is felt that something "must be done." And this feeling projects plans of providing spectacles and of operating on adenoids, of healing ear discharges, or of curing ringworm and blight, and all this by the great maternal State, who gathers her family together in the school.

But while all this is being organised, when it has been carried out thoroughly and well, the root of the evil will be untouched—nay, it may even be aggravated. The conception of parental duty and responsibility will be in no way strengthened, and it is this lack of responsibility which is at the back of most of the trouble.

And if parents are taught—as the tendency of medical treatment at school will tend to teach them—that they may neglect with impunity their duty towards their offspring, all benefit of health to the children will be counterbalanced by the consequent loss of self-respect and self-dependence in the nation as a whole. While we make full use of the growing consciousness of the importance of childhood; while we take care that the young citizen shall have his needs satisfied in all directions and with the most lavish generosity, let us also see to it that the greatest of all needs—the need of parental care and protection—be not left unsatisfied.

This means a deepening of the sense of parental responsibility. It means a restatement of the truth that the child is not primarily or merely a municipal asset, of which the State is bound to make the utmost, but has its home and environment in the family circle; and that this family, the unit from which all healthy society springs, must assume its part of such duties and obligations as will answer for the healthy life of the child.

Therefore, with every advance in child study there must be corresponding increase in sense of duty, and with this an increase in knowledge of what parentage entails. And if this attitude be once granted, there will be no lack of means of carrying out such lessons of reform.

Both in New York and Boston the medical inspection of the doctor is supplemented by visits of the nurses to the homes of the children; these visits are said to be most beneficial in dispelling ignorance and removing misconception. The necessary treatment can be provided, and will gladly be provided, by most parents when the necessity is explained and the urgency is emphasised.

And while the nurses visit the homes I would also propose that the parents should be requested to attend when their child, who has been found to be unwell, is re-examined. Much then could be instilled which no letter can explain, the co-operation of the family will be frankly invited, and the co-operation will not be suggested in vain.

And for those who are so lost to all sense of duty as to refuse to co-operate with the school authorities for the child's well-being, there remains nothing but the strong arm of the law, which must be in this case as always an expression of the enlightened conscience of the community.

Thus, if a parent can provide spectacles or refuses to do so, I would propose to exclude the child and to summon the father for his non-attendance. The English law already presupposes that the parent must send the child in a fit state to be educated, and the law as it stands is sufficient; and, if carried out without sickly sentiment, the shiftless and neglectful parent would be driven into a sense of care and protection of his child.

In this question of medical treatment of the children of the poor, as in so much else which has to do with the betterment of the slums, it must be realised that there is no short cut to social reform. In our anxiety to make the child healthy it may well be that we are throwing

to the winds all chance of the development of family affection and coherence. This affection is strong at present; it may be, indeed it has been weakened, and it may be destroyed. There are some who desire this; and with them there is a clear issue which is irrevelant to this paper. But if the family as an institution is worth preserving, any extension to medical treatment at school, apart from supervision and inspection, is a policy fraught with most dangerous possibilities for the nation and the State.

MEDICAL TREATMENT AT SCHOOL FROM THE FAMILY DOCTOR'S POINT OF VIEW.

By A. C. E. Gray, M.D., London.

It is obvious that the State is only indirectly responsible for the health of its children; the immediately responsible person is the parent. But as the State compels the parents to send their children to school, it is surely not too much to say that it is justified in discovering whether the children are in an educable condition or not; that it is a good opportunity for ascertaining whether the parents are fulfilling their responsibilities or not.

Inspection, however, is useless unless it be followed by treatment, and this brings us at once to a practical difficulty. Some, recognising these difficulties, are demanding the establishment of school clinics, and that the children who are found to require it should be treated thus by a medical man appointed and paid by the school authority. Mr. Iselin has already pointed out the social and moral consequences of removing responsibilities from the parents. I wish to show that treatment at school would be injurious to the interests of the medical practitioner, that it would be both unscientific and unsatisfactory, and certain to be at best a very partial success.

Neither the school nor any other authority has any legal right to treat a child medically, except at the express desire of the parent. Adequate medical treatment can only be carried out through the medium of the parent. Unless the surroundings and conditions are controlled, it becomes a farce. Moreover, unless the sympathy and co-operation of the parent be enlisted, the treatment will lose half its value or fail altogether.

As, then, the child can only be treated at home and through his parents it follows that the person who is to prescribe that treatment must be one who enters the home, and who knows the actual conditions. If an ideal State is aimed at, medical inspection should be compulsory and continuous from the moment of birth. The doctor of the future should be, and will be more and more, the expert who is retained to see that proper methods of life are followed and illness in consequence averted where possible. With the adult much can be done to check

incipient disease processes, but in the case of the child the field is almost unlimited. We are coming to realise that the early years of life are all-important, that environment is more effective than hereditary tendencies, that in the early years, even in the first year of a child's life, you may make or mar the man. Heredity counts for something, but it assuredly counts for much less than mode of life, surroundings, and methods of upbringing. Even if there be inherited diminution of resistance to disease, early watchfulness and care will often eliminate it. Now, if all this is to be aimed at—and certainly nothing less can be our desire—the only person who can be expected to carry it out is the family practitioner. He alone has the opportunity of studying both parents and children; he alone knows the family tendencies, the general conditions and special limitations; and he alone can engage the co-operation of the parents in any plan of treatment, and be on the spot to see that the plan is followed out. More than this, he will succeed where another would fail. Medicine is a science, but it is also an art, and particularly is it a difficult art in dealing with the exigencies of family practice; and the school-appointed medical man, unless he was himself a general practitioner, would not have the experience necessary to wage successful war against the ignorance, the prejudices and the stupidities of the average parent.

Those, however, who advocate the establishment of school clinics argue that the family doctor has ceased to exist in the poorer districts of our large towns; that even where he does exist he is too incompetent to undertake the work; and that much of the treatment required by children is beyond the scope of the general practitioner.

All this is only partially true. But to assume for a moment that it is true; what is the cause? The cause undoubtedly is the unfair competition of the far too numerous and too numerously attended free medical agencies, and the consequent fastening of the idea in the mind of the working man that he need not pay for medical treatment. It is absurd to suppose that he cannot pay. He can and does do so. But even if he were unable, that is no argument for giving him free medical relief. Medical attendance ought to be an item in every man's budget, and if it is provided free, wages will to that extent be lowered in the long run. What the working man can do to provide for sickness is evidenced by the enormous growth of the sick benefit societies; and their growth would have been much greater if it had not been hindered by foolish charity and unwise administration of the poor law. What is needed is a great extension of the provident medical system.

On the matter of competency, it is argued that such things as operations for adenoids, correction of errors of vision, and so forth, are beyond the scope of the general practitioner. This, again, is only partially true, and it merely results from the fact that there has been no demand in the past for such work from the general practitioner.

But, it may be asked, why struggle to preserve the general practitioner if he is already tending to disappear? Because he is, in my view, essential to the community, and the community will insist on having him. His present scarcity in the poorer districts is due to artificial causes which can be removed. Apart from the fact that hospitals are not intended for the vast majority of the people, they cannot treat every kind of illness. Many cases must be treated in their homes; and

there is no doubt that an out-patient department of a hospital is a very unsatisfactory and inefficient substitute for efficient individual medical service. Seeing, then, that the general practitioner must exist, it is surely wise to do everything which will make him as efficient as possible; and the way to do that is to increase, not diminish, his responsibilities, to extend, not to limit, the demand for him.

As to practical details, my suggestion for meeting the difficulty, put briefly, is this. Let the inspecting medical officer, on discovering any condition requiring treatment, notify the parent of its existence, and of the necessity for treatment. If the family already have a medical attendant, the fact should be ascertained, and he should be communicated with. If the matter be urgent, or if, after a reasonable interval, nothing is done, the child should be excluded from school till the condition is cured; and if this is not attained in a reasonable time the parent should be summoned and fined, unless he can give satisfactory reason for the delay. As the inauguration of the new system of inspection will reveal—and indeed has already done so—a larger number of cases of defective vision than our existing hospital machinery could cope with at the moment, an arrangement should be come to with the hospital staff whereby they could be dealt with in batches at fixed times. When the first list had thus been dealt with, the new cases would not be so numerous as to dislocate the ordinary hospital machinery.

In all other instances it should be left to the parent to provide his own medical attendance. Either he would employ a private physician, or, if the case were suitable, take the child to a hospital; in default of either of these alternatives, recourse would have to be taken to the poor law.

In this way already existing organisations could be utilised to overtake the work. No doubt it would take time to effect the desired end, but it would have the inestimable advantage of being a development along natural lines and not artificial, and it would have the further and not less important advantage of educating the parents in their responsibilities. We are much too timid about insisting on the duties of citizenship. The primary duty of a citizen, one that should come before all others, is the care of his children. Disease is often a crime; and the sooner we can make parents realise that neglect of their children's health is criminal, the better for the nation.

I have time only to touch upon one other point which has been referred to, namely, the municipalisation of the medical man. It would undoubtedly supply individual medical service in places where it does not exist; but I have already pointed out that if the right course be pursued this deficiency will, with a little patience, disappear; and from every other point of view municipalisation would be a distinct loss to the community. Competition, even among doctors, is a healthy thing, and without it medical service would undoubtedly be less efficient. Medical service, moreover, is an intensely personal matter. A man's practice is his own, whether he likes it or not, because it is the result of his own character and individuality; and it is impossible to imagine that a district medical officer would, or could, give the same quality of service as the existing family practitioner gives to the patients who select him. Officialism tends to routine, and routine is inimical to the best medical work.

Sir Henry Craik, K.C.B., M.P. (chairman): Although we were all agreed as to the necessity of medical inspection, no one acquainted with the condition of our schools could have any doubt that there was an enormous mass of very complicated detail and machinery to be faced before inspection could be carried out with any hope of success. This fact ought to make Parliament pause in its legislative action. It was easy to insert a clause enforcing medical inspection in an Act of Parliament. The far more serious task of ascertaining conditions, of stating the agents and methods of the work, lay behind, and, if not done thoroughly, were far better not done at all. One point in Dr. Cronin's paper must strike the English people. In a country so admirably devoted to the precepts of liberty as America, rules and regulations might be established for education which would be opposed in Great Britain. Would it even be safe at once to introduce these drastic rules into this country? We had to meet an enormous amount of prejudice and of rooted aversion to interference with what was called individual liberty, but was very often only individual licence. Undoubtedly the evils we had seen depicted existed in our midst exactly as in the United States; they would not bend themselves before any theories of individual liberty or licence, but would assert themselves and grow unless we brought scientific method to fight them. It was by scientific method, not by pious resolutions as to the necessity of medical inspection, not by inserting a few words into an Act, and then leaving everything to slide without proper guidance from science, that we must proceed. Politics and scientific method did not always run on parallel lines. The House of Commons was not always inclined, in discussions on social questions, to ally itself with scientific method; it was too apt to imagine it could proceed on quick and ready-made lines. We had learnt from Dr. Cronin how much could be done by firm and energetic action taken in obedience to scientific laws, and how successfully prejudice might be overcome. The benefits which followed in the wake of such a system were certain to put heretics right and persuade the most unwilling. It was to be hoped that the result of this conference would be to impress upon Ministers of the Crown that they had to do something more than express a pious hope, or lay down the wide and general rule that medical inspection must take place. They had also to provide sound administration and money for carrying these resolutions into effect in a way which would ensure the necessary work being done. Of one fact the public must be convinced—that these evils, unless checked, would presently overcome us. There was no standing still. We must advance and use our strongest weapon, scientific method, if we were in any way to combat successfully the evils arising from the congestion and poverty of city life, from the deleterious effects of the rapid extension of manufacturing establishments upon public health, and from the aggregation of children in school.

Sir William Bousfield (London) observed that in the L.C.C. schools the children were, to their great advantage, inspected by nurses, who were now paid by the Council, though originally maintained, in the days of the London School Board, by private subscription. It was in the interest both of the public and of the children that the parents should be responsible for carrying out the medical treatment recommended at school. In the course of his own experience as magistrate he had often made orders compelling parents to send their children to school in a fit state of health, and these orders had been complied with, though they involved medical treatment. Provident dispensaries, both in towns and rural districts, enabled parents, by payment of small periodical subscriptions, to obtain such treatment for their children, and the very poor could have recourse to hospitals, or to the poor-law system. If the State undertook such treatment of school children parents would lose their sense of responsibility, and the younger generation would grow up to expect it to be provided for them as their natural right. Any abandonment of the idea of family responsibility involved obvious dangers. The question of the parents' ability to pay was easily solved by existing methods of enquiry; and it was all-important not to degrade the self-supporting and higher-class family to the level of the lower and dependent one. The former was already alarmed at the idea of the school doctor. The moral question was of as vital interest to the nation as the physical;

and if drastic measures were taken with parents who neglected their children, a far more healthy social system would be created than if the State itself assumed parental functions.

Dr. M. D. Eder (London) maintained that Mr. Iselin's *a-priori* objection that the provision of spectacles or removal of adenoids threatened the sacred institution of the family was not borne out by the facts. Deplorable as was the physical condition of the children of 1907, fifty or a hundred years ago it was infinitely worse, with babies five or six years old, working day and night in mills or mines, before the era of State intervention. Exclude the defectives, said Mr. Iselin, and if their parents failed to provide, *e.g.*, spectacles, let the latter be fined and imprisoned. How family life would be better maintained if the parent who did not provide spectacles was rendered unable to provide food, was not explained. In a complex civilisation such as ours the children's welfare became the concern of all good citizens, and could no longer be left to the vagaries or neglect of individual parents. Experience showed that medical treatment at school involved no danger to family life. At the public schools the school doctor was in attendance. If a boy were sick, all the distressed father knew was that he must draw an extra cheque at the end of the term ; and family life did not centre round the cheque-book. Moreover, the diseased or disabled children, if refused treatment, became a source of danger to the healthy. In the interests of the latter we must secure adequate treatment for all. The general practitioner would have to qualify himself to take his share in school inspection and treatment, and so more and more to fill the doctor's proper sphere, the prevention of disease.

Dr. J. J. Buchan (M.O.H., St. Helens) remarked that, to be of any value to the community, inspection must be followed by treatment, and this was difficult to secure. Inspection was now no longer concerned only with the detection of contagious and infectious diseases ; and, as in infectious diseases, the responsibility for treatment was frequently undertaken by local authorities, so in the same way the responsibility for treatment of eye and ear defects in school children no longer rested solely with the parents. In the majority of cases the treatment recommended had not been carried out, and some means must be devised to obviate the possibility of such neglect in the future. The general practitioner's work should be co-ordinated with that of the school authority, school hygiene being too great a part of preventive medicine to be carried out by a few school medical officials.

Dr. O. Lewin (London) spoke of the methods of the Westminster Health Society, which aimed at treating children while still too young for school, and so filling the schools with the physically fit. Homes were visited and mothers instructed in the rearing of infants, and in the treatment of the elder children's infirmities. In many cases rickets and verminous conditions had been combated, adenoids removed, eye defects remedied. In co-operation with the school authorities the health visitor saw that the treatment recommended by the school doctor was carried into effect. Such work could not be done by attendance officers, who had no connection with the children until they were of school age, with their physical defects aggravated.

Dr. M. A. Reeve (Toronto) remarked that there was little hope of a satisfactory solution of the question under discussion until our legislators could control public opinion. There was need and scope for a crusade on the part of schoolmasters, physicians and clergy to educate both parents and legislators. Meantime hysterical anti-vivisectionists were misspending energy and money in opposing scientific research, so beneficial and far-reaching in its results. Moreover, the Government was notoriously parsimonious towards all scientific and medical reforms. As for Canada, if the country were mapped out into public health districts, and medical health officers appointed for life, independent of local councils, with definite duties and powers, schools and children could be thoroughly inspected, either personally or by deputy, with marked improvement on present conditions.

Dr. Elwin Nash (Beccles) opposed the entire abolition of parental responsibility in the matter of treatment. As regards personal interest in his children, the Jewish parent was an object-lesson to the British. He would lose a day's work to take his child to hospital. No treatment in any form should be provided as a sequel to inspection, except spectacles, and those only on the ground of their cost. The payment of a penny (and in some districts of a halfpenny) per week secured treatment in provident dispensaries, friendly societies, etc., while for the very poor there were the hospitals. Thrift should be encouraged, and only necessary aid given to the destitute. But indiscriminate charity, with its free meals and free boots, was only pauperising the working classes.

Dr. Thornett (London) spoke of the difficulty the eye hospitals had in coping with the enormous number of refraction cases sent by educational authorities. Spectacles did not cost as much as had been stated; sphericals only 1*s.* 9*d.*, and astigmatic lenses only 4*s.* 9*d.*; and parents, if helped by advice, sympathy and smoothing of difficulties, would be able to buy the glasses in the great majority of cases. Children often broke their glasses and took no care of them at all, if provided gratis. The Westminster Health Society had done a great deal in getting at the parents and helping them to obtain or to save the money to obtain necessary medical aid for their children. Continued personal interest and contact was essential.

Dr. Cuntz (Wiesbaden) remarked that the proposals to establish school clinics, and to regard treatment as a necessary corollary to inspection, would meet with no favour in Germany, where they adhered to the principle that the school doctor should not provide any form of treatment. If his recommendations were not carried out the child should be excluded from school and the parent fined for every day of non-attendance. Ample provision for the treatment of the poor was secured by the public dispensaries. The English proposals seemed likely to lead to socialism pure and simple, and Germany would not follow on that path.

Dr. A. C. E. Gray (London) pointed out that spectacles could be bought for 1*s.* 6*d.* and 1*s.* 9*d.* Treatment was in most cases doomed to failure unless the parents were personally responsible for its proper carrying out; *e.g.*, spectacles might be bought and seldom worn. The public-school boy's father, cited by Dr. Eder, was often a flagrant example of the disregard of parental responsibilities. His boy was sent to school at an early age to be out of the way. We must aim at bettering the child's condition before he was of school age, and the sooner eye specialists started work in the country the better. It was useless to employ a dentist at the age of twelve when defects were preventible by proper hygiene from the very beginning of the child's existence, and perhaps even before its birth.

Dr. Cronin (New York) closed the discussion by pointing out that there had been no interference with any ideas of parental responsibility in the actual working of the New York scheme. The State's first attention should be given to the child; with his parents it was only secondarily concerned in this matter. New York did not want any citizen to deteriorate in value, and there must be some logical stopping point beyond which parental neglect could not continue. Let the State provide for this generation, and the next would probably provide for itself. Who was to look after the child during the period of his exclusion from school, or of his father's consequent imprisonment? Lack of food was an even more serious defect than lack of spectacles. After all, it was only a proportion of the children that needed attention, and proper care of these qualified them to become useful citizens later on. In New York 75 per cent. of the parents notified had responded to the appeal (perhaps owing to the potency of imitation as a factor in human life), and had carried out the doctor's instructions; 25 per cent. had failed to do so. But there was no State intervention until the parent proved neglectful of his duty. The school or health authorities persuaded him to consent to the operation; the line of least resistance was taken, and in practice it was found easier to operate at school. There was no idea of working except in

co-operation with teacher and nurse. Whereas one-third of the population of London passed through dispensaries and hospitals, in New York no recommendation was ever made to a dispensary, that worst aid to pauperism, but always to a physician. What proportion of the London cases were referred to doctors for treatment? Private treatment was eminently desirable, and, as a matter of fact, if one child was attended to at the public expense the parent next door would have his son treated at his own personal cost. There was no carelessness to complain of in regard to breaking spectacles, and the parents paid for them. The ideal was, of course, to ensure proper conditions before ever the child went to school. As to vaccination, it was not compulsory, but no unvaccinated child was admitted to school, and everyone was compelled to attend school from the age of eight. Since the family doctor—*i.e.*, the general practitioner—was best acquainted with the family conditions, he should be municipalised, and cases should be referred to him for treatment. But it was essential that he should qualify himself sufficiently, *e.g.*, to remove adenoids, fit glasses, etc. Then let him do the work, no matter whether he was paid by the family or by the State.

L'HYGIÈNE SCOLAIRE AU PORTUGAL.

Par le Dr. Costa Sacadura.

Dans l'impossibilité de lire intégralement, à cause de sa trop grande longueur, mon travail, "L'hygiène scolaire au Portugal," expressément rédigé et imprimé pour être distribué à ce congrès, je vais seulement ébaucher ce qu'est dans mon pays la législation scolaire et à ce sujet présenter quelques très rapides considérations. . . .

Les investigations auxquelles j'ai procédé dans la législation scolaire promulguée depuis les dernières années du XVIII^me^ siècle m'ont révélé la lenteur de l'évolution de l'hygiène scolaire au Portugal et m'ont fait voir le retard qu'on a apporté à attaquer de front une question d'une si grande importance.

Pendant longtemps, l'hygiène de l'édifice seule a paru mériter quelque attention ; dans une seconde phase, l'attention s'est tournée vers l'hygiène du professeur ; mais tout s'est borné à l'exigence d'un certificat médical présenté par le candidat à l'occasion de son concours ou à l'occasion de son admission dans les écoles normales.

Enfin, à la troisième étape, on exige de l'élève de l'école primaire, au moment de son inscription, un certificat par lequel il prouve qu'il n'est pas atteint de maladie contagieuse, et qu'il a été vacciné.

Ce lamentable état de choses s'est maintenu jusqu'à la promulgation de l'actuelle réforme de l'instruction primaire, en date du 24 décembre 1901, qui créa "l'Inspection sanitaire scolaire," donnant de larges attributions aux inspecteurs, attributions qui furent amplifiées dans le règlement général en date du 18 septembre 1902.

Je regrette de ne pouvoir transcrire ici cette loi dans son entier avec le rapport y afférent, car elle représente indubitablement un progrès

incontestable en matière d'hygiène scolaire si abandonnée comme je l'ai prouvé.

L'hygiène de l'édifice scolaire avec toutes ses dépendances, l'hygiène du corps enseignant et l'hygiène des élèves ainsi que les mensurations anthropométriques de ces derniers, etc., tout cela est consigné dans cette loi.

Malheureusement cette loi n'est pas mise intégralement à exécution, et j'exposerai plus bas les causes déterminantes de cet état de choses.

Les professeurs primaires portugais, en général très dévoués à leur mission, sortent des écoles préparatoires ignorant presque complètement les questions d'hygiène scolaire, et cela par la seule raison qu'il n'y a pas dans ces écoles une chaire d'hygiène, qui, à mon avis, devrait être régie par un médecin, pour les mettre à même de connaître cette branche de l'instruction.

D'un autre côté, les autorités scolaires elles-mêmes apprécient chez les médecins scolaires principalement leur rôle de policier, c'est-à-dire le rôle qui leur permet de vérifier la véracité ou non-véracité des maladies que les professeurs allèguent quand ils manquent à leur service.

Ce rôle, odieux et fatigant, dérobe au médecin un temps qu'il pourrait mieux employer utilement, et d'un autre côté, lui enlève une partie de la sympathie des professeurs.

Mais la principale raison pour laquelle la loi ne peut avoir son accomplissement, c'est que, pour mettre a exécution de si larges attributions que celles qui ont été indiquées, on a nommé seulement deux inspecteurs sanitaires pour tout le pays.

Comme éclaircissement il suffit de dire que, dans la seule capitale, Lisbonne, il y a soixante-quatorze écoles primaires officielles, en dehors de celles de l'enseignement libre qui sont nombreuses, fréquentées par onze mille enfants environ, et dans le pays entier, six mille écoles approximativement.

Comment deux médecins seulement pourraient-ils faire les mensurations anthropométriques sur un nombre d'enfants si élevé ?

Telle est la principale raison qui, malheureusement, a empêché l'exécution d'une grande partie de la dite loi.

Cependant il y a trois points acquis par la nouvelle loi et dont je veux accentuer la portée.

Aucune école ou collège particulier d'instruction ne peut s'ouvrir sans que l'édifice n'ait été examiné par l'inspecteur sanitaire scolaire et que celui-ci ne l'ait jugé pourvu des conditions hygiéniques indispensables. Cette mesure, dont il est inutile de faire ressortir la portée, a amélioré extraordinairement l'hygiène des salles de classe de l'enseignement privé Il est regrettable cependant que le mobilier de ces collèges privés ne soit pas assujetti à la même surveillance officielle.

La deuxième question a trait à l'hygiène du corps enseignant. En vérité, l'examen de santé passé aux candidats au professorat, avant leur entrée dans les écoles préparatoires, est très nécessaire, aussi bien que celui qu'ils subissent avant de prendre possession de leur charge, après leur nomination. Cette intervention officielle épargne ainsi l'exercice du professorat à des individus malades et faibles.

Enfin, le troisième point revêt également une énorme importance, principalement sous le point de vue de l'hygiène oculaire dans les écoles et a trait aux livres adoptés.

En effet, les conditions hygiéniques des livres à adopter dans les écoles sont les suivantes :

1. Le papier d'impression doit avoir une légère nuance jaune, et être suffisamment épais pour que l'impression d'une des faces ne nuise pas à celle du verso, en employant le minimum de pression.

2. L'interligne, pour les livres des deuxième, troisième, et quatrième classes, ne doit jamais être inférieur à trois points.

3. Pour les livres de la première classe, l'usage de toutes les lettres capitales est permis.

4. Pour les livres des deuxième, troisième, et quatrième classes sont autorisés les caractères suivants :

Romain—Caractères 12 no. 1, 12 no. 3, 32 no. 1 et 88 no. 1.
Noirs—Caractères 44 et 36.
Anglais étroits—Caractères 44, 40, 31, 24.
Étroits—Caractère 48.
Aldin ou *Italique*—Caractères 12 no. 1, 12 no. 2, 18 et 24.
Cursive—Caractères 20 no. 1, 28 no. 2, 48 no. 1, 14 no. 2, 16 no. 3, 16 no. 2, 16 no. 7, 20 no. 2, 24 no. 2, et 24 no. 3.

Les caractères stipulés se réfèrent à "l'Imprensa nacional."

5. Pour les livres des écoles normales on autorise l'usage du type *romain* caractères nos. 10, 9 et 8.

6. La longueur des lignes ne peut jamais être supérieure à 0^m 10 centimètres pour les livres de la quatrième classe et des écoles normales, et de 0^m 085 pour ceux de la deuxième classe et de la troisième.

Les livres sont d'abord examinés par les inspecteurs sanitaires et ne peuvent être admis dans les écoles officielles et privées qu'après avoir obtenu leur complète approbation sous le point de vue hygiénique.

Ces conditions ont été, il y a peu de temps, jugées insuffisantes et vont être modifiées par l'Inspection sanitaire scolaire, qui impose de plus les conditions suivantes :—(*a*) Le papier ne doit avoir aucun lustre ; (*b*) la couleur des caractères doit être exclusivement noire ; (*c*) les marges ne doivent jamais être inférieures à 0^m 025.

Ces conditions doivent garantir la bonne hygiène des livres imprimés.

Par ce qui est exposé ci-dessus il est facile de voir que, si la présente loi n'est pas complète et ne réalise pas toutes les aspirations de l'hygiène scolaire, sa mise à exécution améliorerait extraordinairement la population de nos écoles, qui constituerait demain une génération plus vigoureuse que la génération actuelle. Telle qu'elle est, nous voyons donc que cette loi a apporté avec elle de notables conquêtes dans le champ de l'hygiène et qu'elle a réalisé, sans contestation, un énorme progrès.

De tous ses défauts, et ils sont nombreux, sans parler du manque d'assistance scolaire et autres, je veux noter les suivants :

(*a*) Le défaut de représentation de l'Inspection sanitaire scolaire au Conseil de l'Instruction Publique où elle pourrait donner un avis très utile sur les horaires, programmes, etc. etc.

(*b*) Le défaut d'une chaire d'hygiène dans les écoles préparatoires au professorat. Je suis convaincu que des professeurs bien au courant de cette branche de la science pourraient aider très efficacement et seconder très activement les médecins scolaires.

(*c*) Le terrain pour les constructions scolaires est choisi par le seul architecte ou par un de ses délégués, un surveillant. Il me semble que le médecin scolaire a une compétence spéciale pour donner son opinion

sur cette question. Et il est curieux de constater que ce fut justement sur cette question du choix de l'emplacement pour constructions scolaires, que le médecin, pour la première fois, fut consulté pour les services scolaires. Certainement, dans les réformes futures, il sera remédié à ce défaut.

(*d*) Enfin, le nombre des médecins scolaires est absolument insuffisant.

Comme je l'ai dit, c'est en 1901 que fut promulguée la loi qui créa l'Inspection Sanitaire Scolaire pour les établissements de l'instruction primaire. Cependant il n'y avait rien de décrété pour l'enseignement secondaire et les mesures utiles tardèrent encore plusieurs années.

Ce fut seulement par le décret du 29 août 1905, qui introduisit d'importantes modifications dans la loi organique de l'instruction secondaire, que l'on s'occupa de l'éducation physique de la jeunesse des Lycées, dont la doctrine à suivre est contenue dans l'article 4 du même décret, que je transcris ici :

Art. 4. Tous les élèves du Lycée feront leur éducation physique suivant les méthodes modernement adoptées et spécialement par la pratique de la gymnastique suédoise.

§ 1. Le gouvernement, après avoir consulté les inspecteurs sanitaires et le Conseil d'hygiène du Centre National d'Escrime, publiera des instructions sur cette question.

§ 2. A l'inspection sanitaire . . . appartiennent . . . les examens médicaux des élèves des Lycées, à l'effet de déterminer les exercices de gymnastique suédoise auxquels chacun des élèves doit être soumis.

Auprès de chacun des Lycées de Lisbonne, Coïmbra e Oporto, un inspecteur sanitaire exercera ces fonctions ; dans chacun des autres Lycées ce soin incombera au sub-délégué de santé de la localité.

Comme complément à cet article, le livret scolaire adopté dans les Lycées présente une partie destinée à l'inspection sanitaire.

C'est-à-dire que les attributions des inspecteurs sanitaires, déjà extrêmement vastes, furent encore étendues à l'instruction secondaire. On nomma cependant deux médecins de plus dans la capitale, et il y eut de la sorte quatre inspecteurs à Lisbonne (sud du pays), deux dans la capitale du nord (Oporto) et un autre dans la ville la plus importante du centre du pays (Coïmbra) ; nombre très insuffisant, étant donné la quantité d'écoles primaires officielles, lycées, établissements d'enseignement privés, etc., etc.

Comme conclusion—la loi qui régit l'inspection sanitaire des écoles au Portugal, qui, dans ses lignes générales, paraît correspondre aux nécessités sanitaires scolaires, est devenue insuffisante à cause des larges attributions imposées à un personnel restreint et du défaut de certains éléments qui, jugés comme secondaires, sont cependant indispensables. Mais j'ai la certitude que moyennant des modifications que la pratique a déjà indiquées et d'autres que le temps fera connaître, cette loi correspondra aux aspirations des hygiénistes et aux nécessités de la population scolaire.

Malgré tout, et avec l'exécution qui lui a été donnée, elle a contribué considérablement à l'amélioration de l'hygiène dans l'enseignement.

ANTHROPOMETRY IN SCHOOL.

By F. C. Shrubsall, M.D., M.R.C.P., London.

At the present time anthropometric work is being conducted by private individuals in most of the countries of Europe and America, and hopes exist that, in time, more comprehensive surveys may be undertaken. It is very advisable that, so far as possible, the same measurements should be taken in all countries for the sake of comparison. It is, at least, to be hoped that the measurements should be taken in the same manner. The present Congress affords a further opportunity of laying before the actual workers in the schools of foreign countries the schedule of measurements proposed by the Anthropometric Committee of the British Association. A large series of measurements has been drawn up, and the points and methods carefully defined. This list will be found in the British Association Report, 1905, and the illustrative diagrams in the Report for 1906. It is not hoped that so extensive a series could ever be generally used in schools, and a shorter schedule has been proposed which could be extended if time and opportunity permitted. The simplest schedule that could be adopted would consist of measurement of stature and weight. The *stature* should be ascertained with the subject in the exact attitude, with his eyes directed to the horizon, his heels firmly planted, and the pads of his feet just in contact with the ground. It is essential that the subject should not be wearing boots, since the method of allowing for the height of the heel of the boot introduces serious errors. The *weight* should be taken on any accurate form of weighing-machine, which is constantly tested. The subject should wear a dressing-gown of known weight which is deducted before the result is recorded. The method of estimating roughly the probable weight of clothing has led to serious errors.

If further observations are permissible, the next most important are those which determine racial characters, the type of colouration, and the cranial form.

The hair colours have been classified as Fair, Light Brown, Dark Brown, Black, Light Red, Medium Red, and Dark Red. A standard series of locks of hair has been prepared by the Anthropometric Committee, but, up to the present, no satisfactory method of reproduction of these by colour-photography or otherwise has been found.

The iris colours have been classified as Blue, Grey, Neutral, and Brown. The Neutral class comprises green, very light hazel, and all eyes with mixtures of brown, grey, blue and green.

The fundamental cranial measurements are the length and the breadth. The *maximum length* is directed to be measured with the callipers from the most prominent point of the *glabella*, or prominence in the mid-line between the two eyebrows, to the most distant point in the middle line on the back of the head, known as the occipital point. The fixed point of the callipers is first applied to the glabella and kept there, while the other point is moved over the back of the head. Care must

be taken to keep the callipers in the median vertical plane. The pressure of the points of the callipers on the head should be as much as can be comfortably borne by the person under examination.

The *maximum breadth* should be measured wherever found above the plane of the earholes. The callipers may be held in a vertical or in a horizontal plane, and moved about until the maximum diameter is ascertained, the observer being careful to keep the points of the callipers exactly opposite to each other, *i.e.*, in the same vertical and horizontal planes.

When a more elaborate series of measurements is practicable the chest dimensions should be ascertained.

The Anthropometric Committee recommend that these measurements should be taken at the level of the junction of the fourth rib cartilage with the sternum or breastbone. The fourth rib cartilage can be found by noting the projecting ridge on the front aspect of the upper part of the sternum, and taking the second rib cartilage below this. The measurements should be the circumference as taken with the tape passed horizontally round the chest while the subject holds his arms straight up over his head, but lowered to the side before the measurement is read off. The circumference should be noted at *deep inspiration* and at *complete expiration*, the difference giving the expansion of the chest. The complete expiration is easily attained by asking the subject to count twenty aloud quickly without inspiring.

Before removing the tape, the level should be marked with a blue pencil (dermatograph) around the chest to enable the succeeding measurements to be taken.

The Committee are of the opinion that more valuable results would accrue from determining the diameters of the chest with the callipers at the level thus marked out. The *antero-posterior* diameter, from the mid-line in front to the mid-line behind, is from the sternum to the spine of the dorsal vertebra. The maximum lateral diameter found with the callipers held horizontally with the blades tangential to the sides of the chest at the level of the blue line referred to above.

In the British Isles, where the cephalic index, relation of the breadth to the length of the head, shows few variations, chest measurements might be regarded as more important if the time available for the investigation of each child was short.

Further measurements suggested for a school schedule are the breadth across the shoulders and the trochanters and the height of the head.

The breadth of the shoulders (biacromial) is taken between the most lateral points of the sharp tip of the shoulder, most easily discovered by feeling from behind forwards.

The great trochanters are the outstanding projections at the upper end of the shaft of the thigh-bones, external to the hip joint, and the measurement proposed is the maximum distance between these.

The height of the head should be measured with an auricular radiometer from the mid-point of the earholes to the top of the cranium, on a vertical plane, when the eyes of the subject are directed to the horizon.

It is not in any way proposed to restrict measurements to this limited schedule; any others in the list given in the Report for 1905 are recommended for adoption should time permit. The present schedule is merely a selection considered as most suitable for use in schools, etc., when the

available time is short. A similar schedule has been devised for physiological and psychological measurements, but these are being dealt with in another section of the Congress.

It is proposed that each child should have a separate card or schedule on which should be recorded its name, sex, date of birth, birthplace, birthplace of father and mother, number of brothers and sisters, with a reference to the number of their schedules if they were also measured ; position in family, *i.e.*, number of older and younger brothers and sisters, and reference to the schedules of any other members of the family measured. In drawing up reports the standard of age to be the age last birthday.

THE IMPORTANCE OF SCHOOL ANTHROPOMETRICS IN THE STUDY AND CONTROL OF NATIONAL EVOLUTION.

By J. Gray, B.Sc.

The object of anthropometrics is to collect exact data of the physical and mental characters, of the health, and of the environment or conditions of life of the people. This can be done by measuring sufficient samples of the population at regular intervals of time. In the case of children, the measurements must be made at every year age, since comparisons can only be made between two groups of children of the same age. From the data thus collected, averages, deviations from the average, and correlations can be calculated, and from the results thus obtained we can determine the laws of interaction between man and his environment and thus study and, to a considerable extent, control our national evolution. The physical and mental efficiency of our citizens is our greatest national asset. On this depends our power of defence against external enemies, our power of creating wealth, and the general happiness and well-being of our people. The science of anthropometrics which collects exact data and points the way to improvement, is not merely of theoretical, but is of immense practical importance.

I.—The Method of Anthropometry.

In making anthropometric observations, it is of primary importance that a uniform scheme should be adopted throughout the whole country. The Anthropometric Committee of the British Association has prepared a standard scheme, which, issued as it is with the authority of the leading anthropologists in this country, must in time receive general acceptance. There can be no doubt, therefore, that measurements in all schools should be made in accordance with this scheme. The number of characters that may be measured will depend on the numbers and skill of the staff available, and on the time at their disposal.

A graduated series of schemes has been drawn up by the Anthropometric Committee, the simplest of which includes the measurement of weight and stature only, and the most ambitious of which includes stature, weight, hair and eye colours, chest girths and diameters, length and breadth of head, breadth of shoulders, breadth between trochanters, and height of head.

The persons who make these measurements should receive a sufficient amount of training to ensure uniformity in the measurements. One or two hours' instruction by an expert will, as a rule, suffice for this purpose.

Schedules for entering up the measurements have also been prepared by the Anthropometric Committee. These schedules are arranged to receive data about the birthplace and relatives of the subject, also the anatomical, physiological and psychological measurements, the results of medical inspection and the factors of the environment.

The schedules may consist of cards, all the cards for one subject being stamped with the same number and kept together in a card cabinet. Name and other indexes to the cards should be prepared.

A preferable way, I think, is to bind a number of the schedules in book form. Each volume would contain measurements of children of the same age. For example, one volume would contain the schedules of all children between the ages of fourteen and fifteen years. The book might contain measurements of children of the same age taken in successive years. Any data, such as habits or factors of the environment, which applied to a group of children would be entered upon pages at the beginning or end of the book, distinct and separate from the schedules. The number and date of previous schedules relating to the same child would be noted on each schedule so that the measurements of an individual throughout his or her school life could be collected.

It will be sufficient to measure a child once per annum. It is desirable that the measurements should be made about the same time of the year, say between September and January, when the rate of growth is very slow.

Measurements of boys and girls should, of course, be entered in separate books.

It is of great importance that the degree and kind of the factors of the environment should be noted, either on the schedule, if it is special to the individual, or on separate sheets if it applies generally to a group. A preliminary list of the most important factors should be drawn up beforehand so as to secure uniformity in the data collected. Food, air, habitat (town or country), dwelling (number of rooms), and hours of sleep are some of the most important.

II.—The Treatment of Statistics.

When a sufficient number of schedules has been filled up a statistical analysis of the data may be made. It is desirable that at least 1000 of each sex and of the same age, and of the same stock should be measured before analysis of the data is undertaken. By the same stock is meant that the children should all belong to the same class—say, the professional, the commercial, the labouring or the artisan. A class should be made up of individuals among whom intermarriages are customary. Individuals belonging to social strata between which intermarriage is

rare should not be grouped together in the same class. As it will not be usually possible to get the 1000 subjects in one school, the book of schedules may be passed on to other schools containing children of the same class.

Having got measurements of the necessary numbers, the average value of each character and the standard deviation of the individuals of the group from the average should be calculated.

This work is not laborious, even for very large numbers, if it is carried out by systematic methods.

The average is best worked out by writing in a column on the left-hand side of a sheet of paper a series of consecutive possible values of the character measured. Opposite each of these values is written the frequency Z, with which it occurs in the group. An approximate value of the average is then selected, and the distance X of each frequency group from this selected average is written opposite. Another column is then calculated containing the products ZX, half of which will be positive and half negative. The algebraical sum of the moments is found and divided by the total number in the group. This result added to the selected average will give the true average.

The standard deviation is found by forming another column of the products ZX^2, which is found by multiplying together the columns ZX and X. The sum of the values of ZX^2 divided by the total number in the group gives the standard deviation squared about the selected average. Now subtract the square of difference between the selected average and the true average from this rough standard deviation squared, and the standard deviation about the true average will be found by extracting the square root of this difference.

By working out a few examples one soon becomes familiar with this method of calculation. An example worked out is given at the end of this paper.

3·1 times the standard deviation on each side of the average may be taken as the possible limits of variation of the individuals in the group. Only about one person in 1000 will be outside these limits.

Having found the averages and standard deviations of all the characters measured, correlations between any pairs of these characters can be calculated. A correlation table must first be prepared, on square paper, by a system of double entry, each individual being entered simultaneously under its value of the two characters. The average values of these two characters being taken as the axes of coordinates, and X and Y being the coordinates of each individual, σ_1 and σ_2 the standard deviations of the two characters, and N the total number in the group, then the co-efficient of correlation,

$$r = \frac{\text{sum } (XY)}{\sigma_1 \, \sigma_2 \, N}$$

When the correlation is perfect $r = 1$, and when there is no correlation $r = 0$.

A correlation between two characters means that when the value of one character changes, a simultaneous change takes place in the average value of the other character. For example, there is a positive correlation between the length and breadth of the head, and that means that if

you select a group of individuals with a higher value of the length of the head than the average, the average value of the head breadths of this group will be higher than the general average.

In the case of children a great deal of valuable information can be obtained by drawing growth curves. The growth curves show the average value of the character, say, stature, for each year of age. This curve is of different shape for boys and girls. Between the ages of thirteen and fourteen years girls are on the average taller than boys. At all other ages the boys are taller. The average statures of different social classes differ considerably. For example, the professional class is two or three inches taller than the commercial, the commercial class is taller than the labouring class, and the latter than the artisan class. But these results might again differ in different parts of the country owing to the stock being different.

Any deviation of an individual from the average growth curve which is greater than, say, three times the standard deviation, may be regarded as indicating the action of some abnormal influence on this individual, and points to the necessity for investigation.

I now propose to deal with

III.—The Utilisation of the Results of Measurements in the Study and Control of National Evolution.

The maintenance of the physical and mental condition of the people at the highest possible standard is evidently one of the first and most important duties of all having authority or influence in the State.

This is perhaps fully recognised in this country; but the methods by which it is sought to attain the object are guided more often by sentiment than by a scientific knowledge of the problem to be solved; and there can be little doubt that, as the result of our unintelligent methods of social reform, a slow but none the less serious deterioration of the population of this country is taking place. What is wanted to direct public attention to this serious condition of things is a periodic measuring of the people and especially of the school children.

There are two methods by which the average efficiency of the population may be improved. In the first place by good upbringing. The physique of the rising generation can be made the best of by good feeding, fresh air, healthy dwellings and industrial conditions, and the mind may be developed to its utmost capacity by good education. These may be called *eutrophic* methods of improving the average efficiency of the citizens.

In the second place, each successive generation may be improved by selection, or by what has been called by Galton, *eugenic* methods—*i.e.* by good breeding. This is the method which Nature has applied to the lower animals with such happy results, but which modern civilised man appears to have entirely ignored. Mr. Heron has made a remarkable statistical investigation, which makes it highly probable that the lower and more wretched the condition of any class of our population is, the faster it multiplies. This, if true, can only have one result, namely, to lower the average standard of the whole population. What is still more serious is that the rate at which we are deteriorating from this cause has doubled within the last fifty years. This conclusion has been arrived at

from the very scanty statistics available, but it makes the presumption of a serious national deterioration so strong that the importance of periodic stocktaking of our national physique can no longer be ignored. There can be no doubt that the first step in this direction is the measurement of school children, because it can be done with comparatively little labour and expense. When the benefits to be derived from a physical census of the children have been realised the measurement of sufficient samples of adults will follow.

All social legislation and social reforms would then be controlled by eugenic principles, and not alone by eutrophic principles, which appears to be the case at present. No one seems to ask what will be the effect on the next generation of free meals to indigent school children, of reduction of infant mortality, of universal spread of education. As far as we know at present, it may be good or it may be evil. From the eugenic point of view it would appear to be disastrous that the greatest rate of increase should be amongst the least efficient class of citizens.

I have listened at this Congress to many excellent papers on the medical inspection of school children, and on many other proposals for improving the physical and mental characters of children of the lower social strata. The writers of these papers and the speakers in the discussions almost invariably ignore the eugenic principle that none of these measures will improve the mental and physical characters of succeeding generations unless their tendency is to reduce the birth-rate of the less efficient citizens and to increase the birth-rate of the more efficient citizens.

Modern humanitarianism, which originated early in the last century, and which we regard as one of the most creditable features of our civilisation, may be one of the principal causes of the rapid deterioration of our population, of which there are many indications.

This humanitarianism, while it has greatly ameliorated the condition of contemporary generations, can reasonably be credited with some share in bringing about the excessive multiplication of the least efficient classes, which Heron's researches have apparently shown to be taking place.

Reforms which may be very humane to the present generation may be exceedingly inhuman to the next. Our humanitarianism should take a wider outlook and take into consideration, not only the welfare of the present generation, but also the welfare of the race.

It is impossible, however, in the present state of our knowledge, to determine how this is to be done. The reactions of the social organism to its environment are so complex that it is almost impossible to predict the effect of any new measure.

The only trustworthy solution of the problem of progressive national evolution is periodic measurement of the physical and mental characters of the population.

It is a matter of urgent importance that the Government should introduce into the Education Bill now before Parliament a provision to make it the duty of local education authorities to make and record observations and measurements of the physical and mental characters, and of the environment of children in elementary public schools.

The Board of Education should also establish an anthropometric board to organise, control, and analyse the results of the measurements.

This board should, in my opinion, be separate and distinct from the medical board which the Board of Education proposes to establish to control medical inspection, because national evolution depends on many circumstances not connected with disease. The anthropometric board would take into consideration the anatomical, physiological, psychological characters of the population, as well as the statistics of disease collected by the medical board. But if the anthropometric work is placed under the control of the medical board there will be a tendency to restrict their survey to the defective part of the population only. Any statistician will understand that, from partial data of this kind, no complete view of the course of national evolution could be obtained.

Example of Method of Calculating Averages and Standard Deviations.

L = Length of head. Z = Frequencies. X = Distance from selected average. N = Number in group. σ = standard deviation.

L.	Z.	X.	ZX.	ZX^2.
174				
	1	15	15	225
176		14		
	1	13	13	169
178	1	12	12	144
	1	11	11	121
180		10		
	1	9	9	81
182	4	8	32	256
	1	7	7	49
184	1	6	6	36
	4	5	20	100
186	8	4	32	128
	4	3	12	36
188	8	2	16	32
	1	1	1	1
190	7	0	−186	
	3	1	3	3
192	6	2	12	24
	4	3	12	36
194	6	4	24	96
	3	5	15	75
196	4	6	24	144
	2	7	14	98
198	3	8	24	192
		9		
200	1	10	10	100
		11		
202	2	12	24	288
	2	13	26	338
204		14		
		15		
206		16		
		17		
208		18		
		19		
210		20		
		21		
212	1	22	22	484
N = 80			210	3256

$$210 - 186 = 24.$$

$$\text{Average} = 190 + \frac{24}{80}$$

$$= 190{\cdot}3.$$

$$\frac{3256}{80} = 40{\cdot}7.$$

Subtract $\frac{1}{12}$ (Sheppard's correction),

i.e. $40{\cdot}7 - {\cdot}0833$

$$= 40{\cdot}6167$$

$$\sigma^2 = 40{\cdot}6167 - ({\cdot}3)^2$$

$$= 40{\cdot}6167 - {\cdot}09$$

$$= 40{\cdot}5267$$

$$\sigma = 6{\cdot}366.$$

Dr. SHRUBSALL (London) suggested that, if the section desired to promote an international agreement, they should put themselves in communication with the anthropological societies of Europe, with a view to organising and conference, or correspondence, on the subject.

Dr. NASH (Beccles) supported the forwarding of a resolution to the International Committee on School Hygiene, urging it to take steps to standardise measurements and collect data.

Miss MARGARET MCMILLAN (London) said that she had tried to second a motion for the formation of a committee for the study of anthropometrical measurements, and subjects arising therefrom, that would be of use to the educationists and hygienists of the country. At present we were in the dark as to variations of growth and growth-periods, and this lack of knowledge might easily cause misinterpretation even of the facts which came under our notice. The work of anthropometrists had already been of service to teachers and school doctors in making measurements, and an alliance between these three forces might in the future undoubtedly have great results.

Dr. DENNIS VINRACE (London) insisted that any resolution sent up from this section should embody the idea that anthropometrics were in the cause of school hygiene.

On one feature he felt strongly, viz., that if it was so important to measure periodically the girth of the chest in view of testing the efficiency and growth of the lungs, it was equally important to estimate the calibre of the nostrils in view of ascertaining whether in all the circumstances of life, rest, exertion and posture, etc., they were a sufficient breathing channel.

He attached the greatest importance to such a measurement as, after all, a sufficiency of air was the great factor in all development, and its inhalation through the nostrils was not only of paramount importance in lung development, but in the development of the nose and throat and intellectual powers.

Deficiency in this breathing channel caused the nose and the cavities leading from it to be imperfectly ventilated, and so gave rise to deafness and serious evils.

He considered that, apart from medical inspection, this periodic measurement was of the utmost importance.

He would like to see other features recorded, *e.g.*, respiratory capacity.

SECTION VII.

CONTAGIOUS DISEASES, ILL-HEALTH AND OTHER CONDITIONS AFFECTING ATTENDANCE.

MALADIES CONTAGIEUSES, INDISPOSITIONS ET AUTRES MOTIFS D'EXCLUSION DE L'ÉCOLE.

INFEKTIONSKRANKHEITEN UNWOHLSEIN UND ANDERE DEN SCHULBESUCH BEEINFLUSSENDE ZUSTÄNDE.

President.

Sir Shirley Murphy, Medical Officer of Health, County of London.

Secretaries.

C. J. Thomas, M.B., B.Sc., D.P.H., London.
W. H. Hamer, M.D., D.P.H., F.R.C.P., London.

OPENING REMARKS OF THE PRESIDENT OF SECTION VII.

(Sir Shirley Murphy.)

It is my privilege to give you a sincere welcome to the meetings of the Section which is concerned with the "Study and Discussion of Contagious Diseases, Ill-health, and other conditions affecting attendance at School."

The subject-matter of this section has an especial importance because of the intimate relation which exists between infectious disease in the school child and infectious disease in the population as a whole. We are not here dealing with a class of malady which, except for its economic results, is of concern only to the individual and his family, for the school child who may suffer from such disease possesses a potentiality or actuality of mischief to the general population which it is impossible to disregard.

There is, however, another reason for recognising the importance of our subject. That attendance at school should be compulsory is inevitable under the conditions of our civilisation, that this attendance involves increased risk of exposure to infection is undoubted, hence the duty of the State to protect the child from risks incidental to an act of enforced obedience is a moral obligation. Our object in meeting in this room is to endeavour to learn how this protection may be best afforded with the least interference with the primary intention of the child's attendance at school, or how this primary intention may be best effected under conditions which reduce to a minimum the risk to which the school-

attending child is exposed. In our study of this subject we are at once confronted with the fact that the risk of infection to the school child in the school is only part of the whole. In endeavours to control the spread of infectious disease in the school it is impossible to ignore the conditions which prevail in the home. In efforts to limit the occurrence of infectious disease in the home we must have regard to the opportunities of infection which occur in the school. In England, until recently, the Education Authority has been separate from the Health Authority and the difficulties which have stood in the way of organised administrative effort have been great. Probably nowhere were the results more manifest than in London during the epidemic of diphtheria which prevailed especially in the six years 1892–7, during which some 15,000 children lost their lives. In such matters division of administration involves the weakening of the machine. Two separate bodies, even with the best intention, do not accomplish that which would be effected by one body endowed with the powers of both.

In England the difficulty is being met by the constitution of the Health Authority as the Education Authority, and this has in it the basis of an effective machine. The Health Authority has, however, not always been provided with the necessary machinery to effect the object in view, and this machinery must be developed and adapted for the new work which it is required to undertake. Changes are slow, and some mistakes are made, but in the end the true issues are usually seen, and progress in the right direction is made. The guiding principle must be that the administration which is designed to protect the health of the population at " all ages " is that which must be concerned with the health of the child at school age, whether in the school or in the home.

The question may well be asked, To what extent does attendance at school contribute to the number of cases of infectious disease in the population ? The information required to answer this question is scanty, but some indication of the extent of this contribution is afforded by a comparison of the number of cases occurring in holiday periods with the number occurring in periods when children are attending school, and in this connection I might cite the figures arrived at by comparing the number of cases of scarlet fever and diphtheria which actually occurred in the month of August during the ten years 1895–1904, with the number of cases of scarlet fever and diphtheria which would have occurred in London in that month had the schools remained open instead of being closed, this latter figure being arrived at by estimating the cases for the month of August from the actual notifications in the two preceding months of June and July and the two succeeding months of September and October. The difference between the actual and the estimated cases is in respect of scarlet fever 3,974, or 27·6 per cent., and in respect of diphtheria 2,002, or 23·3 per cent.

A legitimate criticism of these figures would be that they may be due not to actual decrease in opportunity of infection during the school holidays, but to—(*a*) diminished population in London, owing to the exodus of young persons at the time of the August holiday, or (*b*) the system of notification being less operative during the summer holiday, owing to the children being less under observation than during the period they are attending the schools, or (*c*) to a combination of both circumstances.

On these points I may observe that with regard to (*a*) much the same decrease is observed in the August holiday among the child population of those places in the country to which the London population resorts at the time of the holiday. On turning now to (*b*), it must be admitted that the notified cases of infectious disease in these places would experience somewhat similar diminution if the decrease were due to the cessation during the holiday of observation of children in school.

Concerning this point of criticism I may, however, point out that the decrease of notified cases of infectious disease in children of school age is often followed a week later by decrease of notified cases of infectious disease among children of a younger age than the school age, suggesting very strongly that there has been diminished opportunity for these younger children to acquire infection from other persons, and this finds its most ready explanation in actual decrease of infectious disease among children of school age.

My own view is that there is decrease of infectious disease among children of school age as the result of closure of the schools during the summer holiday, and that the figures given above represent substantially what that decrease has been, or, in other words, the proportion of cases of infectious disease which at that period of the year was due to the opportunities of infection from person to person as the result of aggregation of children in school. In any attempt to estimate the proportion of cases of infectious disease which during the whole year may be due to this circumstance, it is necessary to recollect that in the autumn months both scarlatina and diphtheria show a marked increase of prevalence, and it may be that there is an ability of the disease to spread in school at that time, which is greater than its ability at other times. If this be the case, the actual proportions of cases in the whole year due to school attendance would be less than is suggested by the figures given above.

The facts, however, go to support the view that prevalence of disease is maintained by inconspicuous cases, whether mild and unrecognised cases, or by cases of persons who having no symptoms of their own, are merely " carriers," with an ability to infect susceptible persons.

Hence arise our difficulties in dealing with infectious disease in schools, the difficulty of detecting exceedingly slight cases of disease, the still greater difficulty of detecting " carrier " cases.

Obviously, any child who is suffering from an ailment that raises question of infectious disease should be at once excluded from the school, and inquiry should be made as to the nature of the malady. In this matter the teachers can and do render invaluable service, and the extent to which they exercise watchfulness over the children under their charge will often determine whether disease is limited to a single child or whether it spreads to other children. Again, the exclusion of children coming from infected homes is a principle which is generally accepted, although certain modifications in the application of this principle are possible in practice, owing to differences in the behaviour of the various infectious diseases which commonly affect school children.

In dealing with outbreaks of infectious disease in schools, the question will always arise whether dependence should be placed on the exclusion of particular scholars, or whether the closing of classes or schools should be resorted to. This is a subject which will engage the serious attention of this Section, and it may be hoped that the papers which will be read

will contribute to the knowledge required for determining under what circumstances "exclusion" or "closure" should be adopted. Where bacteriology can be employed, as in the case of diphtheria, the first of these methods is largely adopted, and hopes are held out that the complete examination of material from the throats of the children attending an invaded school, and the exclusion of all children harbouring the Klebs Loeffler bacillus may suffice without the more extreme step of closing the class or the school. To determine whether this will prove to be sufficiently effective at all times, at the height of an epidemic as well as at times of smaller prevalence, further experience is needed. Results which are obtained during the decline of an epidemic cannot always be relied upon as affording sufficient ground for inference that the same method will be equally effective at a time when diphtheria in a community is rapidly increasing in proportion; but, however this may be, there is no question that ample provision should be made both in respect of bacteriological laboratories and in staff for complete enquiry into the condition of the children attending the invaded school. The more thoroughly this work can be done the greater is the hope that the exclusion of particular scholars will suffice. Other considerations have to be held in view to determine whether the school shall be closed, especially when other diseases are concerned which cannot thus be dealt with. Beyond the question of the extent to which the school is invaded there remains the further question of the proportion of children attending the school who are susceptible to attack. As the result of previous recognised or unrecognised attack, and as the result of natural immunity, there must be a considerable balance of children who are safe from further risk of infection. If we were to judge from the number of cases of scarlet fever which are notified we do not find evidence that any large proportion of London children suffer from this disease. Thus, taking the experience of London during the ten years 1897–1906, we may learn approximately that of children under ten years of age living in 1906 only 63·8 per 1000 had been attacked; among those at the other ages being under nine years, 57·5; under eight years, 50·4; under seven years, 42·2; under six years, 33·9; under five years, 25·2; under four years, 17·2; under three years, 10·4; under two years, 5·2; under one year, 1·7 per 1000. Notified cases, however, provide an incomplete basis for estimating the proportion of children who have passed through an attack of the infectious diseases, and we can in no way assume that the balance represents the number of susceptible children remaining. In some degree the number of notified cases is swollen by cases notified in error, but, on the other hand, not all the cases of recognised infectious disease are notified, and still more certainly, only a proportion of the actual cases which occur are recognised. Further, it is common experience that only a proportion of the persons exposed to infection are attacked, even when, so far as can be known, they have never before suffered from the malady; hence nothing but actual experience can show what infectious disease will do if left unchecked in a class or school of children of any particular age. On these points interesting material will be placed before the Section.

In view of the special incidence of infectious disease upon children in the first few years of life, the question of the age at which these children should be required to attend school is a subject well deserving of study, and will be before this Section. In England the age of compul-

sory attendance is five years, in Germany it is one year later. An examination of the statistics of infectious disease of communities having a different age for attendance should throw some light on this subject. If the age of attendance be deferred, protection from attack of school-derived measles would obviously not be extended to every child under that age. If older brothers or sisters contracted measles in school, they would bring the disease home to younger brothers and sisters, although these younger brothers and sisters, if they themselves attended school, would have the additional risk of exposure to measles in the school itself. It is, of course, the family of a single child which would derive the most benefit. How would deferred school attendance show itself in the statistics of infectious disease? It is quite likely it might be manifest in the case of scarlet fever and diphtheria, and but little, if at all, in the case of measles. The subject is well worth inquiry, which, of course, should relate to each of the diseases with which we are concerned, inasmuch as they do not manifest the same degree of infectivity. Unfortunately, it is the usual practice to group for the purposes of publication all cases occurring from five to ten years of age, and here I may make an appeal to those who have the tabulation of these figures that, whether published or not, the number of attacks and the number of deaths should be separated for each year of life so as to be available to determine statistically a question of this sort. However, "the lower age limit of school attendance" will be before us from the pen of an especially able writer, and the need for the proposal I have made may be better determined after we know the contents of this paper. Under all circumstances, we may bear in mind that if the age of attack is deferred, it results in a lessening of the fatality of the disease, and that, if postponement of age of attendance at school leads to postponement of age of attack, the result will be a saving of child life.

I have made no mention of prophylactic inoculations, but I may say that the value of vaccination as a preventive of smallpox needs no mention here. Experience of the use of antitoxic serum as a prophylactic in schools is much more limited, but good results have been claimed for it.

The subject of tuberculosis has a well-merited position among those which will come before the Section. If I may hazard a conjecture as to the trend of evidence concerning the conditions which cause this disease, I might say that infection by ingestion must increasingly be regarded as an important factor in tuberculosis. However, this may be, the question of what may be done for the school child, both in the matter of prophylaxis as well as of cure, needs to be considered. Especially is there reason for hoping that the early detection of tuberculosis at the school age may lead to diminished mortality, not only at that age but at a subsequent period of life.

One of the advantages of school attendance is the opportunity which is afforded for dealing with all conditions of health of that part of the population which is of school age, whether they affect life or only cause inconvenience. Hence, the parasitic diseases of the skin, trachoma, etc., are included in our programme. Of these I need say nothing more than to insist on the great advantage to the population which would result from a systematic treatment of all children who suffer from contagious maladies of this sort. There should be no difficulty in the practical eradication from the population of all such conditions if the work is

seriously undertaken in connection with the children who are brought under observation in the schools and if the work be followed to the home where the younger children are found. In the same way it may be pointed out how much may be done for the extinction of pediculosis. A condition of this sort ought not to be tolerated in a civilised community, and school attendance gives a claim for interference with this condition in the child population.

In the few remarks I have ventured to make in opening the meeting of this Section I have endeavoured to touch as briefly as possible upon some of the questions which will be dealt with in the papers which will now be read. My remarks are, I fear, discursive, but in some degree inevitably so, and I have not attempted to do more than show how much the health of the population of the community at all ages is dependent upon the thoroughness with which the medical supervision of school children is carried out. Attendance at school gives opportunity for the Health Officer to concern himself with the personal hygiene of a considerable section of the community, and further to control, at any rate in some degree, the prevalence in the total population of the class of maladies which come under the cognisance of this Section.

SUMMARY OF PAPER ON DIPHTHERIA IN SCHOOLS.[1]

By James Niven, M.A., M.B.,
Medical Officer of Health, Manchester.

The subject may conveniently be divided into two parts, the first concerning itself with the question whether elementary schools have caused an increase in the prevalence of diphtheria and the manner in which it spreads in schools; the second, with the mode in which the spread of diphtheria in schools may be combated, and the relation of such action to the prevention of diphtheria generally.

It does not follow because diphtheria spreads in elementary schools that the incidence of the disease must be increased by increased attendance at school. This problem has for a long series of years been studied by Sir Shirley Murphy, in a manner calculated to give an answer to the question raised. From a comparison of the death-rate from diphtheria and membranous croup at school ages, and at younger as well as more advanced ages, in the decade preceding the Elementary Education Act, 1870, which made attendance at school compulsory, with the death-rate from these conditions at the same age groups in the decades following and in the quinquennial period 1901–05, he shows that the diminution of the death-rate at school ages has been less than that occurring at other ages, or the increase has been greater at that period of life.

The incidence of diphtheria has, in fact, been shifted so as to fall more than formerly on children at school ages. Nor can this conclusion be said

[1] The complete paper is too long for insertion.

to be invalidated by the greater precision which has been attained in respect of diagnosis in recent periods, as Sir Shirley shows.

Granted, however, that so much has been clearly made out, it does not necessarily follow that a greater total incidence of diphtheria has thereby been produced, since, unless it can be shown that school life has a special tendency to produce outbursts of diphtheria such as would not occur in the ordinary course of life of children not attending school, all that has occurred may have been merely a shifting of incidence, and not an increase of the total number of cases. It might be supposed, for example, that, if school children remained at home, and were infected, as a number of them no doubt would be, the younger ones being more in contact with those still younger than themselves would infect them to a greater extent than before, and the older ones being, perhaps, at work would increase the amount of diphtheria amongst their seniors.

Nor are there wanting occasions on which the closure of schools has seemed to produce such a result.

Sir Shirley Murphy has been led to consider the effect of school holidays on the incidence of diphtheria, and he has shown that the autumn holiday produces a decided diminution in the reported number of cases, both of diphtheria and of scarlet fever, amongst children at school ages, a diminution which is not necessarily experienced either at younger ages or amongst older persons. Here, again, there can be no doubt that the effect of school attendance in summer is arrested by the advent of holidays, but it is not certain that the improvement at school ages is entirely real, or that, even if it were, the effect of the holidays at that season is not a more important factor than the interruption of school life.

It will be seen that, even after Sir Shirley's refined and elaborate analysis, the question of the effect of school life on the spread of diphtheria in the community admits of further study.

I have, therefore, referred first to the careful investigations made by the staff of the Local Government Board into particular outbreaks of diphtheria, in the period preceding the discovery of the diphtheria bacillus, and in the subsequent period before it had come to be considered a necessary part both of investigation and administration, as well as to Sir Richard Thorne's work, which summarises these and other reports.

From these sources we learn that the manner in which outbreaks of diphtheria are preceded and accompanied by slight sore throats, plainly of a diphtheritic nature, was clearly made out. The part played by other infectious diseases, and particularly by scarlet fever, in causing diphtheria was emphasised. The infective power of special cases, and the persistence of infective power in particular cases, were recognised. The effect of rhinitis in causing infection was not, and could not be, so clearly defined, as it has subsequently become. But the influence of the school was in some instances sharply defined, and it was shown by Mr. Power, in one outbreak, that the children at school were living in an infected atmosphere, similar to that existing in households invaded by diphtheria. Mr. Power also emphasised the manner in which diphtheria introduced, on more than one occasion, into the village school, by cases with slight or without clinical symptoms, appeared to gather intensity as one child after another was attacked.

On another occasion, school children apparently became affected in the course of scrambling play along with other infected children, but in a manner independently of school life.

On a third occasion where a day-school was severely invaded, the disease spread especially amongst the children living in a particular part of the district.

It appears evident that the aggregation of children in elementary schools must have the effect of diffusing diphtheria in a number of instances sufficient when taken together to affect the total incidence of the disease, and that the power of the schools to affect the total incidence of diphtheria will be greatest in sparsely-populated rural districts.

It has appeared to me that it would be advantageous to study more closely the behaviour of diphtheria in relation to schools in the city of Manchester, a study for which I possess a number of apposite facts.

Premising that the cases may, with few exceptions, be regarded as diphtheria, owing to the careful bacteriological and clinical sifting to which they have been subjected, I give the facts in three tables.

Table I. shows the number of cases accepted finally as diphtheria in individual years from 1897 to 1906, and the aggregate numbers accepted, at each year of life up to ten.

In the aggregate a great increase is shown in the number of cases at age three, which is the year of maximum incidence. A small decline takes place at ages four and five, and a marked drop at age six. Now, in Manchester, the numbers attending school at age three are not much over one-third of the numbers attending at age four, and the numbers attending at age four do not greatly exceed one-half of the numbers attending at age five.

Hence the year of maximum incidence precedes the years of school life.

It is, however, the year in which children will first be brought into intimate intercourse with each other and with school children in the course of play out-of-doors. I have already mentioned one instance in which the scramble of play appeared to have a special influence in the diffusion of diphtheria.

A study of the facts for individual years appears to show that as the wave of diphtheria rises the number of cases increases most markedly at school ages and at younger ages, the increase in adults following later.

Further, as the wave rises year by year there is a tendency for the age of maximum incidence to advance to the fourth year, and in exceptional cases to the fifth.

In every year there is a marked drop in the number of cases in the sixth year of life.

The influence of school is thus a special one, and is most marked when the total incidence of diphtheria is greatest—that is to say, when more opportunities are given for its manifestation. This is a result which Sir Shirley Murphy had also arrived at by his method of examining the subject.

The great drop at age six is probably due to the widespread establishment of immunity.

Table II. shows for ten years the number of cases of diphtheria occurring in the separate elementary schools of Manchester, quarter by quarter.

That the significance of this table may be understood, it is necessary to premise that the number of public elementary schools in 1906 was 177, and the number of children on the books 109,765, the average attendance being about 90 per cent.

It will be seen that diphtheria affects particular schools in two forms, either as special outbursts or in the form of a low and steady persistence.

The latter form is greatly influenced by the number of scholars and by the amount of the disease present in the district. The outbreaks or flare-ups, however, which take place in particular schools are more or less independent of these circumstances, and constitute the true school influence. They are due, no doubt, to the aggregation of susceptible children in the infant departments of the schools affected, subjected to some particular cause of a temporary character.

It is probable that this cause is the presence of some child or children possessing the power to produce copious discharges, rich in diphtheria bacilli, while themselves not suffering. Many such cases have been found, particularly among cases of diphtheritic rhinitis, whether post scarlatinal or otherwise, but the tonsils also are affected in a similar manner.

The tendency of such flare-ups to last only a limited period, and to burn themselves out, provided no more children are meantime introduced into the class, is a noteworthy circumstance.

It cannot be doubted that such flare-ups, which are a special product of the aggregation of susceptible material, do add to the diffusion of diphtheria in the community. The degree to which they do so is to be measured by the number of such flare-ups and the number of cases occurring in course of them. Yet it is not to be forgotten that similar occurrences would, though less frequently, take place independently of elementary schools.

Another interesting mode of considering the question is that shown in Table III., which compares the death-rate from diphtheria in the three main divisions of Manchester at ages 0–3, 4–14, and above 15. It will be seen that while the death-rates at ages 0–3, and above 15 do not differ widely in the three divisions of the city, the death-rate in North Manchester is between two and three times as great, at school ages, as the corresponding death-rate for the Manchester township. This is the more remarkable inasmuch as the Manchester township is the poorest portion of the city, and, on the whole, possesses the poorest schools. It might be inferred that school diphtheria pursues a course of its own, independent of that followed by diphtheria at other ages. As we have seen, this is true only partially, and the figures require explanation. It is, however, partially true.

This comparison leads us to observe that the sanitary condition of the schools appears to have, upon the whole, little to do with the occurrence of these outbreaks, which are, in a measure, fortuitous, and dependent apparently on the aggregation of children not yet immunised, and on their opportunities for infecting each other. It has been suggested to me by my assistant, Dr. Goldsmith, that the absence of playgrounds in the centre of the city may be the essential fact, a suggestion which chimes in with the conclusion to which I had already come that the scramble of play was probably the most important fact in the diffusion of diphtheria.

Nevertheless, crowding together in the schoolroom and the use of common articles must also contribute.

I have also analysed the cases of diphtheria occurring in a particular year—an analysis which, while establishing some degree of exchange of infection between school and younger children, again appears to show that diphtheria in school children is largely spread in school, and diphtheria in persons outside school is largely spread independent of school.

It is, however, very difficult to arrive at a secure position. It is manifest that diphtheria is one of those diseases in which the slight or latent cases far outnumber the discoverable cases. This is probably true also of enteric fever, pneumonia, and cerebro-spinal fever.

All these different lines of investigation, then, go to show that diphtheria finds in the earlier period of school life a favourable occasion to extend itself, and that, in fact, it is in this manner widely diffused.

Some facts given by Dr. Graham Smith in his excellent paper in the Journal of Hygiene, vol. 2, go to show that about one-half of school children and a much higher proportion of adults may have harboured diphtheria on a membrane sufficiently invaded to have allowed the system to absorb toxin in small quantities, and so to elaborate a protective antitoxin. Moreover, when diphtheria has definitely invaded a school, the proportion of harbourers is always high.

Further, Dr. Graham Smith shows that the proportion of persons in the poorer districts of an urban community harbouring the Hofmann bacillus is generally high, and I would suggest that in this circumstance may be found the explanation of the comparatively low incidence of diphtheria on the poorer districts. It is not suggested that there is not a pseudo-diphtheritic bacillus, but that the "short" or "suspicious" bacillus is frequently a true diphtheria bacillus, and that in all probability the so-called Hofmann bacillus has frequently been a diphtheria bacillus. I understand from Professor Delepine that he recognises the short form of the diphtheria bacillus by its rapidity of growth on Loeffler's serum, by its cultural characters, by the arrangement of the bacilli in cultures, and by the development of involution forms. There appears to be a considerable margin of doubtful forms, which may be capable of slowly producing immunity. No doubt Professor Cobbett's work is valuable, in giving more precision to the observation of morphological differences. At the same time, the facts seem to point to a widespread production of immunity, especially in the poorest districts, through bacilli of comparatively low virulence. It would be highly interesting to know whether a similar difference exists in different parts of other large towns.

How now are we to deal with the occurrence of diphtheria in school? It appears impossible, usefully, to separate this question from the allied one, how we are to deal with diphtheria generally.

It is now admitted that all cases of suspected diphtheria should be examined bacteriologically, and it may be added that swabs should be taken from both throat and nose.

It is further generally admitted that, while bacteriological confirmation should be sought in all cases, medical practitioners should inject antitoxin on the appearance of suspicious signs and symptoms without delaying to ascertain the result of bacteriological examination. Never-

theless, swabs are not and cannot always be carefully taken, and the conditions are not always favourable to the taking of swabs which will yield true results.

Further, unless the public health bacteriological examinations are made by experts, with great experience, there is a decided risk of cases being classified as not diphtheria which should not be so classified. On both accounts, there is a real danger that the establishment of bacteriological examinations may lead to the spread of diphtheria, owing to a false sense of security being produced in respect of infective persons.

No serious case of throat illness, presenting signs of diphtheria, should be entirely rejected simply on bacteriological grounds, although the absence of diphtheria bacilli should cause caution to be exercised in placing such persons in the same ward with clear cases of diphtheria, for the sake of the latter.

The clinical diagnosis, then, still remains as necessary as ever, and bacteriological examination must be regarded as only an aid, especially in the absence of a staff such as the Public Health Authority in New York has provided.

In the circumstances of public health administration holding in this country, it is very desirable that all cases of diphtheria should be removed at the earliest possible moment after the commencement of symptoms. If this cannot be done, a serious responsibility rests on the medical practitioner who omits to administer antitoxin within the first three days of illness.

No further principles of action can be laid down applicable to all authorities, nor does it seem desirable that they should be.

If, under any system of administration, there is very little diphtheria in a district, and schools are not invaded, it would be better to continue on existing lines, until a necessity arose for acting otherwise. *Quieta non movere.*

If diphtheria is present in the district at a moderately high level, more action is called for. In that case, bearing in mind the necessity of submitting all specimens to a bacteriological expert with large experience and versed in public health work, swabs should, when possible, be taken by an officer of the sanitary authority from the throat and nose of members of any family who have been exposed to infection, and should be submitted to bacteriological examination.

Cases harbouring diphtheria bacilli should receive a prophylactic dose of antitoxin, and may usefully be removed to an isolation hospital to be kept under observation until free from bacilli on three negative swabs.

No child attending school from such a family should be allowed to return to school while harbouring bacilli. Breadwinners may be allowed more latitude. But even breadwinners should not go to work while harbouring bacilli, without being required to use precautions in the way of antiseptic gargles, and nasal douching of a gentle character with antiseptics.

Cases isolated in hospital are, usually, not discharged except after three negative swabs have been taken. But Dr. Newsholme's practice appears to be a good one, viz., to exclude diphtheria convalescents from school for six weeks after discharge from school and recovery at home. Apart from the question of infection, such children are often weak,

and susceptible to other forms of disease—a consideration which might well be taken into account by school authorities in connection with other forms of disease.

There are considerable difficulties in the way of obtaining three negative swabs from children treated at home, and on this account also Dr. Newsholme's plan appears a good one.

There are other precautions required in cases of diphtheria as for cases of other infectious disease, and I therefore insert here the routine procedure adopted in Manchester.

On receiving a notification of diphtheria from a medical practitioner or a positive bacteriological result from the Public Health Laboratory, a form is made out and handed to the sanitary inspector. In the event of a notification certificate not being received in a positive case, the inspector is instructed to call on the medical attendant before proceeding to the house. On the form received he makes out a list of the members of the family and obtains a history of the patient's illness. He enquires whether there has been any discharge from the nose or ears in the other members of the family, and when this is the case a letter is sent to the medical attendant requesting swabs from the affected persons for examination. He enquires if antitoxin has been administered. This can be obtained day or night free of charge; also a syringe, if required. He arranges for the removal of the patient to hospital if the Medical Officer of Health has decided that the patient is to be removed, and enters on a list provided for the purpose all articles of bedding, clothing, etc., that it is necessary to send to the disinfecting station, and points out what parts of the house will be disinfected by the corporation disinfectors.

If the case is nursed at home he sees that isolation is properly carried out, and leaves a certificate to be signed by the medical attendant on the recovery of the patient, when the usual disinfection is proceeded with; also a leaflet explaining the precautions to be taken, and a small pamphlet showing the provisions of the law in regard to infectious disease. The inspector is supplied with a printed letter-card, which he posts to the head-teacher at the first pillar-box directly after his first visit to an infected house in which there are children attending school. He makes a thorough examination of the sanitary condition of the premises. The facts ascertained by the Inspector and entered on his enquiry form are carefully examined by the Medical Officer of Health, as well as by the Statistical Clerk, and form the basis of further action.

The chief librarian of the public free libraries and the librarians of school and private circulating libraries are informed of any borrowed books found in the house, which are destroyed, or, in exceptional cases, disinfected with formic aldehyde.

To the clerk of the Education Committee is forwarded a daily list of names and addresses of scholars, and the school and department of school they attend.

If a case is nursed at home, it will be seen that the certificate of the medical practitioner is regarded as sufficient reason for readmitting the child to school without any swab being taken. There is no systematic examination of contacts. Our practice in this respect will probably require strengthening.

Under these circumstances I have consulted other medical officers of health as to their procedure. In many places—mostly, however, smaller towns—the practice appears to be more stringent in this respect than in Manchester. It is, in fact, largely a question of ways and means.

With regard to outbreaks of diphtheria in schools, especially in large towns, they may be made instrumental in materially reducing the spread of diphtheria, and the whole policy to be pursued may be formulated from the published work of Dr. Hermann Biggs, Dr. Davies, Dr. Heaven, Professor Louis Cobbett, Dr. Graham Smith, and others, in the following terms.

When an isolated case of diphtheria has occurred at a school, the attention of the teacher should be drawn thereto. He or she should be instructed to examine the children and to report any suspicious condition of the throat or nose, any suspicious illness, or any nasal discharge, to the medical officer of the Education Authority. Such cases could be sent to the Public Health Office for swabs to be taken.

If two or more cases have occurred in any department of a school within a period of two months, the medical officer of the Education Authority should visit the school, examine the children, and take swabs from any child presenting suspicious signs. These should be taken from both throat and nose.

All the circumstances favouring the spread of diphtheria should be enquired into, and, as far as possible, guarded against. Any harbourers should be sent home, and the medical officer of health informed, so that, when practicable, protective injection of antitoxin may be carried out.

If from six to ten cases have occurred, the department should be closed, but not until all the children and teachers have been swabbed, so that all necessary precautions may be taken. A thorough disinfection of the schoolroom and of all articles therein calculated to harbour infection should be carried out. The medical officer of health should be apprised of the steps taken, so that he may maintain supervision over the children while the department is closed.

All contacts with cases should be excluded until the cases have recovered, and should not be readmitted until they are themselves shown to be free from diphtheria bacilli.

No children from an infected house suffering from sore throat, sore nose, or nasal discharge should be readmitted unless free from diphtheria bacilli, or, if they have been found to harbour bacilli, until proved to be free on three consecutive negative examinations.

Where possible, institutions seriously invaded by diphtheria should be protected by prophylactic injections of antitoxin into all exposed persons, care being taken to see that harbourers are not thereby overlooked.

Such a course of action as that recommended—Dr. Newsholme's procedure being adopted in the case of school children—should prove a real protection to the community. It is clear, however, that it will entail an addition to the medical staff of the medical officer of health—an addition much needed for other objects.

Should the staff available be inadequate to carry out such a scheme, it may be necessary to delay dealing with schools until as many as five or six cases have occurred in one department, when the department should be submitted to examination, and swabs taken from the throat and nose of

all cases showing any sign or symptom of throat or nasal affection, or any ear discharge. Meantime all contacts would be examined at the homes of persons attacked; but this might be carried out through the medical practitioners. When as many cases as ten have occurred in any department of a school the more complete procedure already mentioned should be adopted, other work being meantime put on one side.

Table II. shows that the danger attending delay up to this point is not so great as might appear.

An effort should be made, however, to carry out the more strenuous procedure first mentioned.

It might even happen that the second course was not practicable; in which case the routine procedure of the office would have to be adopted unless a severe outbreak, say, ten in one department, had occurred. Such routine procedure should comprise, however, the examination of all contacts at home by the medical practitioner, the taking of swabs in suitable cases, the isolation at home of cases for a sufficient period after recovery, and their readmission to school only after one or more negative swabs, and on a certificate of the absence of nasal or throat affection.

Contacts should similarly be kept from school until the primary case is pronounced free from infection in the manner mentioned.

It will be seen that an effort should be made, whenever diphtheria has become prevalent in any locality, to adopt the more complete measures, and to obtain the necessary medical assistance on the public health staff.

In conclusion, I would acknowledge my obligation to Mr. Wyatt, the Director of Elementary Education, Dr. Ritchie, the Medical Officer to the Education Authority, and Dr. B. K. Goldsmith for valuable assistance.

Dr. J. O. Symes (Clifton) considered that routine methods were wasteful, useless, and fraught with danger and inconvenience to individuals, and that it was unsatisfactory to notify merely upon bacteriological evidence. In Bristol the practice was abandoned in favour of clinical examination, with swabbing of doubtful throats.

Dr. Boobbyer (Nottingham) instanced examples of outbreaks under his notice where outbreaks which defied all other means came abruptly to an end upon extensive swabbing.

Dr. A. K. Chalmers (Glasgow) said it was his practice in Glasgow to take cultures from all the inmates of tenement houses where diphtheria had occurred.

Dr. John T. Wilson raised the question of the burden of expense. It was generally agreed amongst succeeding speakers that the advantages to the municipality far outweighed the cost, which ought to be borne by the local health authority.

Dr. Boobbyer said with regard to the incidence upon special districts within the same township, he found that certain districts suffered less, but did not think that this was due to any form of immunity; he certainly had a very poor district in which there were but few cases.

Dr. Chalmers believed that if there was any immunity in very poor districts it was because more sanitary surveillance was exercised in such quarters.

Dr. W. Butler (Willesden) said there were in his district two poor areas, one new one old. It was the new district that suffered most from diphtheria,

due, he believed, to unwise arrangement of sewer ventilation; he firmly believed in the connection between sewer air and the susceptibility to diphtheria.

Dr. NIVEN, in his reply, dwelt on the suggestion that old districts had bacilli of a low type of virulence which immunised populations without producing acute cases.

SCARLET FEVER: THE EXTENT OF ITS PREVALENCE AND THE METHOD OF ITS PROPAGATION AMONGST ELEMENTARY SCHOOL CHILDREN.

By T. H. C. STEVENSON, M.D., *Assistant Medical Officer (Educ.) L.C.C.*

I.—EXTENT OF PREVALENCE IN LONDON.

IT is desirable that the information should be presented in a form showing what proportion of children at any given age has passed through an attack of scarlet fever. All estimates, of course, necessarily omit children protected by mild and unrecognised attacks.

Dealing with notified cases only, at the present time about 15 per cent. of London boys aged fourteen have had scarlet fever. It is assumed that an attack, if survived, confers permanent protection.

Sir Shirley Murphy publishes a table each year giving the attack and death-rates per 100,000 living for each sex at different ages. Deduction of death-rate from attack-rate gives a survivorship or "protection rate," which expresses the proportionate number of individuals in each group newly protected by attack during the age period concerned. "Protection-rates" for males have been obtained for each of the first fourteen years of life in each calendar year from 1893, when the table in Sir S. Murphy's report first appeared, to 1905.

SCARLET FEVER PROTECTION RATES, LONDON.

MALES.

	Recorded Rates.					Rates Interpolated from those for 5–10 and 10–15.								
	0–1	1–2	2–3	3–4	4–5	5–6	6–7	7–8	8–9	9–10	10–11	11–12	12–13	13–14
1893	436	1257	1988	2737	3113	—	—	—	—	—	—	—	—	—
1894	271	632	1116	1492	1524	—	—	—	—	—	—	—	—	—
1895	265	659	1138	1564	1826	—	—	—	—	—	—	—	—	—
1896	336	836	1538	2108	2277	2270	2120	1940	1740	1545	1350	1165	990	830
1897	283	811	1289	1923	2187	2145	1950	1718	1500	1285	1095	920	790	650
1898	185	556	953	1397	1658	1655	1495	1310	1120	935	770	640	530	430
1899	171	531	1049	1539	1798	1735	1500	1300	1130	980	835	710	595	505
1900	121	494	873	1241	1273	1204	1125	1047	960	864	760	655	546	427
1901	221	631	1179	1549	1834	1880	1710	1440	1200	1010	870	750	655	570
1902	209	657	1197	1702	1959	1975	1715	1400	1170	1010	850	730	620	530
1903	147	553	928	1152	1393	1400	1150	940	800	670	575	500	425	365
1904	146	501	924	1264	1497	1545	1400	1190	960	750	575	460	365	290
1905	232	665	1253	1931	2221	2220	1935	1590	1300	1055	830	640	510	425

In 1893, out of 100,000 males aged 0–1, 436 were attacked by and recovered from scarlet fever. These protected children may be assumed to have died subsequently from other causes at the same rate as the unprotected, so that amongst the survivors at any subsequent age the proportion protected by attack during the first year of life always remains the same, namely, 436 per 100,000 then living. The survivors of the infants aged 0–1 in 1893 recovered from attacks of scarlet fever during 1894 to the extent of 632 per 100,000 then living, and this figure, added to the 436 per 100,000 already protected, gives a total of 1086 per 100,000 protected at the end of the second year of life. Of the children living at age 2–3 during 1905, accordingly, 1,086 per 100,000 were protected from scarlet fever by attack in 1893 or 1894. To these are to be added 1,138 per 100,000 protected by recovery from attack during 1895, so that of boys aged three at the end of 1895, 2,224 per 100,000 in all had survived an attack. In the same way it may be shown that at the end of 1905, when aged thirteen, the survivors of these boys were protected by previous attack to the extent of 14,458 per 100,000, or, say, 14½ per cent.

In the same way it can be shown that the percentage of boys protected at other school ages at the end of 1905 was as follows :—

Aged 3	1·9	Aged 8	9·5
„ 4	3·6	„ 9	10·6
„ 5	5·3	„ 10	11·5
„ 6	6·8	„ 11	12·3
„ 7	8·4	„ 12	13·4
		„ 13	14·5

The corresponding rates have not been calculated for girls. They would be somewhat greater than those for boys, as after the first three years of life, girls have, in accordance with the general rule, manifested a greater susceptibility in London during the period in question.

It follows that in studying the behaviour of scarlet fever in schools little account need be taken of the age of the pupils in relation to the number likely to be protected by previous attack. The contrast with measles, in which this factor is all-important, is very striking.

II.—Method of Propagation.

The enquiry was pursued both at the school and at the child's house, 132 cases altogether, chiefly but not exclusively school children, being investigated in this way. In addition to these a considerable number of outbreaks were inquired into at the school only.

Incubation Period.—Although this is generally taken to be under a week, commonly one to five days, many continental and some English observers believe in a longer period. Amongst the 132 cases thirty occurred of secondary cases in households under circumstances pointing to infection of the secondary by the primary case. If all the cases were mere coincidences there would be as many secondary cases in the third week after the primary case as in the first. Of the thirty cases, however, twenty-one pointed to a period of five days or less, and only two to a minimum of over a week. The conclusion seems inevitable that in most of the thirty instances the secondary was infected by the primary case, with an incubation period commonly of five days or less.

Period of Infectivity.—In most of the above thirty instances the primary case infected the secondary within the first day or two of illness.

In a community like London, where over 80 per cent. of all notified cases receive hospital treatment (87 per cent. in 1905), the bulk of the infection for which they are responsible must be caused at the very commencement of their illness, and there can be no doubt that a large proportion of the total infection is caused at this period. It is probable, however, that a further considerable proportion of all cases is infected by missed cases, and as regards these the period of greatest infectivity becomes a matter of practical moment. Included amongst the 132 cases were eight which were at first missed, but afterwards established beyond doubt. In each case susceptible children were exposed to infection in the house, and in six cases infection occurred, during the first week of the infecting case in two instances and during the second in four. So far as they go, these cases seem to point to the second week as more infectious than the first, but not conclusively, for resistance may be lowered by continued exposure. The study of a considerable number of such cases is desirable.

Susceptibility is probably largely a matter of dosage, and it is likely that most unprotected children would succumb to sufficiently prolonged and close exposure. The families of the eight cases just mentioned contained twenty other children under fourteen unprotected by previous attack; eleven of these, or 55 per cent., caught the infection, as against nineteen out of 134 unprotected children in seventy-one families where the first case was promptly isolated. But some children appear to be proof against any exposure. Possibly some of these are protected by a previous undetected attack.

Origin of Cases.

1. The great bulk of cases of which the origin can be traced are infected during the first day or two of illness of the infecting case.

2. A few are "return" cases. There was strong evidence for this origin in two and less strong in four more of our 132 cases.

3. Imperfect isolation can originate cases, but where the vast majority are sent to hospital this must be a comparatively unimportant factor. One such case was met with.

4. Indirect infection may originate cases. This origin appeared more or less probable in seven cases of the series, two pointing to infection by fomites after imperfect disinfection, and five to transference of infection by a child not ill at the time. Three of these five possible "carriers" became infected later themselves, and two are not known to have done so. These two may either have been healthy "carrier cases" or very mild missed cases. There can be no sharp line of demarcation.

5. A fifth possibility is infection by a missed (or concealed) case, and the number of these is so large that they must account for a considerable proportion of the total infection. Eight undoubted cases were met with, eleven others in which the evidence was very strong, and six more in which the possibility was suggested. Nearly all of these were brought to light by the onset of a second case in the family, so that the chance of a case escaping detection must be increased where the family is small. The case which remains undetected has probably not propagated the disease at home, but has every opportunity of doing so in school, consequently the present-day decrease in the size of the family must tend to diminish home infection and increase infection in the school and street.

It may well be that the great majority of cases infected in the school and street are due to missed cases. For these are very numerous and

have, many of them, prolonged opportunity of conveying infection, whereas the case diagnosed at the ordinary time has little opportunity of doing so outside its own home. The great bulk of children are perfectly well on the last occasion of school attendance before scarlet fever. Excluding a number of doubtful cases, seventy of the children dealt with were not ill in school at all, and twenty-one were ill mostly at one school session only. We may take it roughly that ten ordinary cases make five attendances after the onset of symptoms. But ten permanently missed cases, assuming an average infective period of three weeks only, would make while infectious no less than 300 attendances. Thus the missed case has an opportunity of conveying infection sixty times greater than the other.

The possibility of infection by a previous known case in school was established in only a small proportion of the school cases, namely eight out of the whole number, which followed in the same class within a week of the last attendance of the twenty-one cases above referred to. Others of course may probably have been infected in hall or playground. There is some evidence, however, that these twenty-one cases did cause a certain amount of infection. The day of last attendance of the seventy cases not ill was followed within a week by a subsequent case in the same class in sixteen instances, against eight in the case of the twenty-one children who were ill. The proportionate number for seventy children would be twenty-seven, as against the sixteen which actually occurred. The difference and the numbers dealt with are too small to admit of any definite conclusion. The subsequent history of a number of classes also in other schools from which cases of vomiting were reported shows little evidence of infection from these cases. Forty-seven instances in which the initial vomiting of scarlet fever was reported by teachers to have occurred in school were followed ten times only by a second case in the same class within a week; whereas forty cases from the same classes which did not vomit, and most of which were probably not ill in school at all, were followed by another case within a week in twenty-three instances. Eighteen cases known to have vomited in the class-room were followed by four other cases in the room within the week.

On the whole, then, little evidence has been obtained that the disease is spread in school to any material extent by cases recognised and isolated at the usual time. On the other hand, the circumstances of many school outbreaks admit of little doubt as to the reality of spread in the school from some source. This was so in the schools from which most of the 132 cases referred to were reported, and of about twenty school outbreaks recently investigated at the school, about one-third yielded fairly definite evidence of school infection. If this, then, is a reality, and if it is not due to any great extent to cases coming to light at the usual time, it may well be due largely to those missed cases which investigation so constantly brings to light in considerable numbers, and perhaps partly to mere "carrier" cases.

It is difficult to see how, in the absence of an efficient bacteriological method of diagnosis, the occurrence of many of these missed cases is to be avoided. Particular attention was paid, in reviewing the cases here dealt with, to evidence of care or the want of it on the part both of parents and teachers, and the conclusion was arrived at that most had exercised all the vigilance and care that could reasonably be expected of them.

There is, of course, room for improvement, and a few instances of considerable carelessness on the part of parents were met with, but on the whole scarlet fever is a disease which receives its due meed of consideration from all who have to do with it. The typical nature of the cases rather than carelessness seems to be at fault in most instances. Many of the missed cases met with had been under medical treatment, but had escaped recognition till some sequel revealed their nature. Other cases, not missed, would certainly have been so had it not been that more typical cases occurred in the house at the same time.

It is no novel conclusion that the control of scarlet fever is very largely a matter of the detection of missed cases; the difficulty is to see how this is to be secured.

INFECTIOUS DISEASES IN THE ELEMENTARY SCHOOLS OF PRAGUE.

From a Report by HENRY ZÁHOŘ, M.D.,
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I. SMALLPOX, CHICKEN-POX, SCARLATINA, DIPHTHERIA, MEASLES, ENTERIC AND CONTINUED FEVERS.

TAKING the two decennia, 1886–1895 and 1896–1905, we can make comparisons in the age groups, five to ten and ten to fifteen, which groups correspond approximately to the lower and higher elementary schools. The child enters the lower school at its sixth year, and at its eleventh passes either to the higher elementary or secondary school, leaving at fourteen to fifteen.

The registration of every case of disease has been done most carefully.

The population of Prague was, for the period 1886–1895, for seven wards, 180,031, and for the period 1896–1905, for eight wards, was 202,621.

For the infectious diseases above enumerated the annual average of the morbidity and mortality was—

	Morbidity.	Mortality.
1886–1895	3,022	443·4
1896–1905	2,815·1	202·8
Difference	−206·9 = 2·94 ‰	−240·6 = 1·51‰

And for the age groups 5–10 and 10–15—

	5–10 Group.		10–15 Group.	
	Morbidity.	Mortality.	Morbidity.	Mortality.
1886–1895 ..	758·6	57·7	211·5	14·7
1896–1905 ..	873·4	22·2	172·6	6·0
Difference ..	+114·8	−35·5	−38·9	−8·7
‰	+0·09	−0·21	−0·32	−0·07

The comparison of these figures demonstrates that the morbidity is increasing in the second decennium, 1896–1905, at age 5–10, whilst the mortality decreases. Both morbidity and mortality sink in the 10–15 group. Since 1894 smallpox has disappeared owing to the practice of vaccination, though not compulsory. As a result of the anti-vaccination propaganda there may be a development of smallpox outbreaks any time.

Chicken-pox nearly doubled at ages from 5–10, and there was a slight increase in cases from 10–15, the mortality was, however, *nil.*

Scarlet fever is increased in prevalence.

	Case Incidence.			Mortality.		
	Total.	5–10.	10–15.	Total.	5–10.	10–15.
1886–1895	361·1	128·1	34·3	53·7	12·8	2·0
1896–1905	434·1	160·1	43·1	49·7	12·9	1·5
Differences	+73·0	+32·0	+8·8	−4·0	+0·1	−0·5
‰	+0·12	+0·08	+0·02	−0·08	+0·01	−0·01

There is a relatively decreasing mortality, but increase in cases which makes it necessary to carefully consider the causes affecting the spread of this disease.

The results for diphtheria are more favourable.

	Case Incidence.			Mortality.		
	All Ages.	5–10.	10–15.	All Ages.	5–10.	10–15.
1886–1895	386·5	106·2	29·8	128·1	24·4	3·2
1896–1905	277·6	81·4	21·3	33·3	5·0	1·2
Difference	−108·9	−24·8	−8·5	−94·8	−19·4	−2·0
‰	−0·80	−0·21	−0·06	−0·54	−0·10	−0·02

This great diminution is bound to be less in future, because all preventative measures are now thoroughly carried out.

Measles is the true plague of school.

	Case Incidence.			Mortality.		
	All Ages.	5–10.	10–15.	All Ages.	5–1	10–15.
1886–1895	1166·9	347·3	34·9	101·2	3·8	0·3
1896–1905	1341·3	462·8	47·7	68·4	2·4	0·0
Difference ..	+174·4	+115·5	+12·8	−32·8	−1·4	−0·3
‰	+0·14	+0·35	+0·04	−0·23	−0·01	−0·0

The number of cases increases whilst fatal results diminish. Measles comes regularly with the beginning of the school year, and after an

epidemic spread there is a remission. Neglect on the part of the parents in the early stages is the great cause of school diffusion of measles. By registering each child we can, when measles is epidemic, exclude all who have not already been attacked.

The incidence and fatality of typhoid fever was much diminished in the second decennium.

	Case Incidence.			Mortality.		
	All Ages.	5–10.	10–15.	All Ages.	5–10.	10–15.
1886–1895	592·3	50·4	71·1	69·6	2·1	5·1
1896–1905	424·0	35·3	47·5	50·8	1·9	3·3
Difference	−168·3	−15·1	−23·6	−18·8	−0·2	−1·8
‰	−1·18	−0·10	−0.16	−0·15	−0·01	−0·01

The improved drainage of the district and greater control over water supplies, with the better organisation of the sanitary service, quite accounts for the diminution in enteric fever.

Typhus fever only belonged to the first decennium, and as there were only eleven cases at the school ages it is omitted from further consideration.

II. DEATH-RATES FROM TUBERCULAR DISEASES AND ALSO ZYMOTIC AND INFANTILE DEATH-RATES FOR THREE DECENNIA.

	General Death-rate.	From Consumption.	Zymotic Diseases.	Under one year of age.
	‰	‰	‰	‰
i. 1876–1885	31·49	6·98	3·37	9·13
ii. 1886–1895	26·04	4·82	2·46	6·73
iii. 1896–1905	20·69	4·07	0·95	4·98
Differences i. and ii. ..	−5·45	−2·16	−0·91	−2·40
,, ii. and iii. ..	−5·35	−0·75	−1·51	−1·75
,, i. and iii...	−10·80	−2·91	−2·42	−4·15

There is an increase in the later prevalence of consumption in that its diminution is arrested as compared with that of other rates or general mortality, and it is found that the relative increase is four times as great at the age 5–10 as at age 10–15.

During the winter 1906–7, 473 classes in fifty-nine Prague schools were examined by nine doctors; 22,492 children so examined gave 566 children (2·51 per cent.) with tuberculosis of the lungs and bones (2·54 per cent. of boys and 2·48 per cent. of girls); 687 boys (6·38 per cent. boys) and 668 girls (5·69 per cent. girls) suffered from scrofulous affections of glands, skin or corneæ (phlyctenulæ).

SOME POINTS IN THE PROBLEM OF ILL-HEALTH AND SCHOOL ATTENDANCE.

By F. J. Poynton, M.D., F.R.C.P., London,

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I must first thank you for the honour you have done me by your invitation to open this discussion upon "Ill-health and School Attendance." The subject is of much practical interest and can hardly fail to arouse a debate which will be of permanent value to us in our dealings with delicate children and their education. My position is necessarily a somewhat one-sided one, for by the nature of my professional life, I come into contact with many sick children and see and hear the parent's difficulties, rather than those of the Educationalist. My concern is health rather than education. Through the kindness of my friend, Dr. Brincker, I have, nevertheless, to my great advantage, obtained some insight into the vast and complicated machinery of the Education Department, and I have also gathered much valuable information from the annual reports of Dr. Kerr, published by the London County Council. Thanks to this assistance I hope to introduce this discussion in a temperate spirit, and certainly shall do so as one who sees difficulties, and puts them forward with the desire of hearing the opinions of others and with the wish to contribute some few useful points to the subject under discussion.

Time compels me to curtail my remarks, for although the subject is one that is capable of great elaboration a more useful purpose is served by touching shortly upon several debateable points which can then be extended by the speakers who follow.

Firstly, with regard to infectious diseases. I shall be content to echo a sentence in Dr. Kerr's report for 1905–1906, p. 30, to this effect:—"The time has come to press on the Board of Education the necessity for allowing the Epidemic Grant as a natural insurance against the school diffusion of disease, and as a means of allowing sufficient prolongation of the convalescent period when children have been suffering from infectious diseases."

This mention of infectious diseases leads to the question of sore throat. We know that the first symptom of such important diseases as diphtheria, scarlet fever, measles, mumps, and rheumatic fever may be a sore throat. How alive the London County Council have become to this danger in the case of diphtheria is clearly shown by their resolution to the effect that during the presence of diphtheria in any district re-admission is refused to children who have been excluded on account of sore throat or diphtheria, until they have obtained a medical certificate of freedom from infection based on a bacteriological examination. But what is to be done with a child who comes to a doctor with a sore throat when there

is not an outbreak of diphtheria? The bacteriological examination cannot by any means always tell us the meaning of that sore throat, and inspection is also often not sufficient. It may be a passing tonsilitis or a commencing scarlet fever. The child may be practically harmless or a virulent focus of infection, and yet the decision at first may be impossible. I am of opinion that all cases of sore throat which come to the knowledge of medical men should be excluded by a certificate from school attendance until they are well, and that school-teachers should be particularly watchful for complaints of sore throat and not hesitate to bring such cases at once for inspection. I admit the danger of the abuse of this precaution by unprincipled parents, but it is a lesser of the two evils, and medical men will not, I think, be often outwitted by sore throats. Epidemics will be more easily dealt with, and more rapidly stamped out if the danger of a sore throat in childhood is clearly recognised.

A sore throat may be the first symptom of acute rheumatism or rheumatic fever, and leads me to consider next this important disease. So far as my own contribution to the discussion is concerned, it is upon this subject that I most hope to be of some assistance.

The general public are but little aware of the frequency and severity of this disease in childhood. They associate acute rheumatism with painful and swollen joints in adult life, and speaking vaguely of acidity in the blood do not realise that the disease is the result of an infection by a micro-organism and that many important organs other than the joints are frequently damaged. Should any here be in doubt as to my meaning, I would ask them to compare rheumatism to tuberculosis. Tuberculosis may attack many organs. The most familiar condition is tuberculosis of the lungs, but there may be tuberculosis of the joints, or brain, or alimentary canal. So, too, with rheumatism; there may be rheumatism of the joints, rheumatism of the heart, rheumatism of the brain, and so on.

In childhood this disease often attacks many organs, and two may be mentioned as of first importance—the heart and brain. Rheumatism is the great cause of heart disease in childhood, and it is also the great cause of chorea or St. Vitus's dance.

Dr. Newsholme some years ago pointed out that acute rheumatism was essentially an urban disease, and in London it is particularly frequent, and it is common in all large towns. This disease is strongly hereditary, and one believes this to mean, that the children of rheumatic parentage have transmitted to them a delicacy of tissues which makes them especially susceptible to the rheumatic infection. The problem of rheumatism and school attendance presents several aspects. The first of these is concerned with the children of rheumatic parentage. It is an observation of general acceptance among medical men that such children are often highly nervous and subject to night terrors and headaches, and that they easily get over-excited and over-tired. They derive much good from school discipline, but when they begin to dream about their school-work at night and worry over their lessons, no children more certainly need rest and relief from mental exertion.

The next consideration is a much more urgent one, for it is concerned with the proper treatment of those children, whether of rheumatic parentage or not, who develop an attack of acute rheumatism. If the

joints are affected then the pain and incapacity for movement at once renders school attendance impossible. When, on the other hand, the heart or the brain is affected—structures of incomparably greater importance—strange though it may seem, I continually meet with the fact that these children have been attending school until there is a complete breakdown. Yet no rule in medicine is probably more assured than that which lays down rest in bed as an essential treatment for acute rheumatism. How is it then that active heart and brain rheumatism are so easily overlooked ? The reasons are two, the first is that their early warnings are often very indefinite, the other is that there is not a general knowledge of the fact that the conditions are rheumatic. Early heart-disease is singularly free from pain, and on this account pallor, lassitude and shortness of breath are not given their due importance ; the vague pains are, perhaps, called growing pains, and the absence of swelling of the joints tends to dispel all suspicion of rheumatism. The headaches, irritability, and irregular movements of early chorea are put down to naughtiness or carelessness, and the impossibility of fixing attention is attributed to wilful disobedience. Then those attendance medals, which, from my point of view, appear to be so injurious, stimulate the child himself to hold on until compelled by illness to give up. Valuable time—invaluable time, in fact—is thus lost, for it may be asserted that though the majority of children *recover* from an attack of heart rheumatism, few escape without some *permanent damage* to the valves of the heart. Again, as I have remarked, rheumatism in chi'dhood often affects many organs at the same time, and so it comes about that many cases of brain rheumatism or chorea, are also suffering at the same time from heart rheumatism. How can these difficulties be dealt with ? No sudden or sweeping measures will succeed, I think, but there must be a gradual education of the general public to the recognition of the frequency and meaning of active rheumatism in children, and I hold it of great importance that school-teachers, especially, should be acquainted with its chief dangers. They have the power of doing both children and doctors a great service by thus helping to solve what is one of the greatest problems of disease in this country—the arrest of the vast amount of organic heart disease of rheumatic origin. Much of the heart disease of adult life, let me add, dates from rheumatism in childhood.

The third difficulty in this problem of rheumatism and school attendance is the great tendency there is for rheumatism to relapse. It is a common experience in London for a child of six years of age to be attacked with rheumatism and from that time forward to suffer repeatedly from relapses ; now it is brain rheumatism, now cardiac rheumatism, now joint rheumatism. The recoveries, especially from cardiac and brain rheumatism are very slow, and the cases of chorea are so numerous that hospitals cannot cope with them, and yet when they are in the convalescent stage their home-life is often unsuitable, and school attendance is quite out of the question. We need in this country some of our great philanthropists to found convalescent homes where the rheumatic children might thoroughly rest, and if they only knew the sadness of children's rheumatism I am positive those homes would soon be founded.

The last point for consideration in rheumatism is the child with heart disease. By this I mean the child who has recovered from the acute rheumatic lesion but is left with a heart more or less damaged. These

children must be educated, but they are delicate and need careful management. The disturbance of the circulation in the brain by the heart disease often makes them nervous, and cold bitter weather and long flights of stairs are most obnoxious. It is evident that no routine school attendance is permissible, and so far as possible these cases should be singled out and special arrangements made for them.

To summarise these remarks upon rheumatism and school attendance, there are four main considerations: 1. The excitable nature of the child of rheumatic parentage; 2. The danger of active rheumatism when untreated by rest; 3. The stubborn and relapsing character of the disease 4. The delicacy of children left with chronic heart disease.

Should there be any here who think that I exaggerate the great importance of rheumatism, I need only add that if they spent one week in making the round of our London large hospitals and infirmaries they would be astounded at the answers they would receive as to the frequency and severity of this scourge. In seven years as an out-patient physician, attending twice a week at only one of the children's hospitals, I have made notes on over 500 cases in children under twelve years and have seen quite as many more.

In passing I would mention a small group of children who are born with malformed hearts and who live to grow up to adult life. These need also most careful supervision during school life and must be grouped with the victims of acquired heart disease.

Leaving heart disease I would next direct your attention to a considerable group of cases of chronic lung disease which are not tubercular. Such, for example, as asthmatics, who are often most intelligent children. Those again who have suffered from severe pneumonia and bronchitis. Many of these among the well-to-do would not be permitted to winter in England. They are delicate, and during inclement weather want supervision, but a considerable number would recover completely, I think, with more care as to their school attendance.

Kidney disease again, often a heritage of scarlet fever, is a very important condition. It is certain that if a child who has suffered from the acute disease is—from insufficient care—allowed to drift into a state of chronic kidney disease, there can be only one end—viz., persistent ill-health and early death. School attendance must then often be very imperfect until the danger of a relapse has been thoroughly warded off, and yet the ordinary observer could detect nothing amiss during this time of convalescence. Only a medical man can accurately judge the stage of convalescence. There are seasons, too, which are most dangerous to those who have had kidney disease, and I have never seen a better example of this than in last April, when there was an extraordinary increase of acute kidney disease. During such times much judgment is required as to school attendance of a child who has suffered from renal disease.

A well-organised system of medical certificates and a greater development of schools for the physically defective are two precautions of first importance in dealing with these victims of rheumatic, cardiac, pulmonary and renal disease.

I would venture to suggest (paradoxically it may seem) that in these days of specialism medical men are not sufficiently aware of these special schools, and I think something might be done by the school authorities

to make them more known. We ought, I admit, to be well acquainted with them, but we are so engrossed in our own heavy duties that we need to have their existence impressed upon us. They have been a revelation to me, and I am full of admiration for the splendid work they are doing. Yet I realise that they are very expensive, and that their mulitiplication must mean time and money. At present, too, I think, that though a recommendation from the medical man or hospital physician should be encouraged and welcomed, the ultimate decision of admission of a child to such a school should rest with the medical officers of the school board, because, in my opinion, they alone at the present time can decide the essential point as to whether the particular case is the most suitable among the many claimants for the limited accommodation now available.

Medical certificates will need to be as brief as possible. I can assure the Education Department that they can hardly realise the labour of a modern hospital out-patient department, with its enormous numbers, its school and vaccination certificates, its letters to be signed for convalescent homes (some of which are cruelly exacting), and its teaching duties. When I say that in a morning between seventy-five and one hundred medical cases may have to be dealt with in one department at a large children's hospital, some here may understand how worrying it is to have to turn even for a moment from the actual medical work.

Epileptic Children.

The next class of cases to be touched upon is a most difficult one, and this is the epileptic. It is particularly difficult because there are two separate problems. One is, that of the actual fit, the other the mental condition between whiles. The severe fits are most distressing, and are most alarming to other children. Their occurrence during a class must of necessity upset everyone. Clearly a child who is suffering from repeated severe fits should not be attending an ordinary school. Experience, however, shows that we have all grades and varieties of attacks. In a collection of about 200 cases kindly made for me by my assistants, Drs. Moon, Brincker, Keeling, Sweet and Crampton, this fact is well illustrated. Among them there are a number of children who only exceptionally have attacks—once in two months, for example. Many of these are quite intelligent, and if it were not for the alarming character of an epileptic attack they would be to all intents normal children. Then there are others who have infrequent attacks, too, occurring only at night, and then for some mysterious reason suffer from storms in which forty or fifty fits may occur in a week. Others, again, steadily improve under treatment. It is then evident that even if we consider the fits alone that no single rule can be laid down for the education of these children.

The other problem concerned with epilepsy is the mental state. This also varies greatly. As a general rule, it may be said, that the occurrence of many fits, whether of the severe or mild type, will in course of time greatly damage the mind. It is, however, equally true, that some cases degenerate much more rapidly than others, and that mental failure may sometimes follow rapidly upon the occurrence of one or two attacks. The mental degeneration associated with epilepsy is a very serious one, and the imbecility of a dangerous type; and with regard to the mental question I should be much interested to hear from some of those who take

part in this discussion the general experience of school authorities in dealing with the education of epileptic children.

In addition to the damaging effect of repeated epileptic attacks on the brain, there are the strange mental states that sometimes follow immediately upon the fit and which are transient. The most dangerous of these is mania, a condition which, in adults, has been the cause of the most horrible murders sometimes of a wholesale description. Children though they generally sleep heavily or remain quiet after a severe fit, may also sometimes do extraordinary things and be, for a while, quite dangerous to those near them. One boy under my observation ran away from home time after time immediately after a fit.

Personal experience of epileptic children leads me to think that, from the educational point of view, we *cannot* group them into two great classes.

From the standpoint of convenience this would be a simple measure, for the slight cases would attend school and the severe would go to an epileptic colony, but I feel convinced we should not have done our best, for there would be a large number left not able to attend school with regularity, and not suited for a colony. These would run a great risk of becoming uneducated, a deplorable event, when we bear in mind that even bad cases may get quite well under steady treatment and with others the fits can be greatly curtailed.

In dealing with this problem, I see the brightest light in an intelligent co-operation between parents, school teachers and medical men, coupled with the cautious trial of special schools for the large class of epileptics that lie between the very mild and very severe types.

Deficient children form a very large class in big towns and with many types of these I cannot attempt to deal. A mention must, however, be made of a fortunately small group—the morally insane. These are most painful cases, in which there can be no doubt some important step in the development of the brain is arrested. From the earliest age such children are destructive, wanton, thievish, and untruthful. The worst cases are quite hopeless. Morality, as we all recognise, does not by any means run parallel with intelligence, and these cases illustrate this fact very clearly, for such children may be alert, sharp and unusually clever, but they have no moral sense and cannot be taught morals. They do infinite harm in a school by their evil influence upon those who have a weak moral sense, and they should never be sent among healthy-minded children with the intention of training them by example, for a good example conveys no meaning to them.

The other class of deficient children includes those who were originally normal, but who, after some sudden brain disease, become permanently damaged in some respect or other. These cases cannot fail to interest us at the present time on account of cerebro-spinal meningitis being one of the causes of such a disaster. That disease has certainly increased in frequency during the last twelvemonths, and should the increase persist the schools must find, in a few years, more deficient children of this type to deal with. Sometimes the deficiency takes the form of complete blindness and deafness, one or both. These contingencies are already dealt with. More troublesome in some respects are mental changes. Intense irritability, inability to bear any mental strain, loss of memory, and loss of power of attention and general mental weakness are frequent

sequelæ of these cerebral illnesses, and they may entirely alter the mental tone of a previously promising scholar. In other cases the moral character is altered and a condition produced akin to the congenital cases of moral insanity that I have just mentioned. Others become epileptic. A long convalescence is necessary after a severe cerebral illness of this kind, and here again it appears to me, that when a return is made to school life it would be very advantageous for the medical officer of the school authorities to receive some certificate from the medical attendant upon which he would act to the best of his power, sometimes making use of a special school or, again, curtailing the hours of study. We are all of us acquainted with children who have been struck down with an infantile paralysis, or who are slowly recovering from a diseased spine or tubercular joint. Many of these are quite able to profit by education, and no one who has once seen them in a school for the physically defective can have the least doubt that they are not only happy but are capable of returning with interest the care spent upon them. In a rich country like our own, these children who have to face the world thus heavily handicapped have a right to demand our most earnest care and consideration, and every effort must be made to educate their undamaged brains to employments suited to their physical defect.

I would most briefly allude to certain common conditions among the poor, which may at first sight seem somewhat trivial, but which through the ignorance and, I might even say, the degenerate carelessness of many parents are productive of great harm. These are neglected teeth, chronic ear discharges and adenoids. The teeth of poor children are horribly neglected, and the tender and offensive conditions of their mouths and gums produce dyspepsia from food bolting and anæmia from continual poisoning. Some homely instruction upon this point and some practical illustrations of the use of the tooth-brush would be as useful as any physical drill.

Chronic ear discharges are a danger to the child and an offence to its associates, and it is deplorable how callous parents are upon this point. Adenoids, by blocking the nasal passages, are the cause of much stupidity among children. It is, in fact, impossible for a child to keep his attention when the condition is severe. Few people, I think, who are fixing their attention do so with their mouths open, but these children cannot breathe if their mouths are closed. Respiration is impaired, and the blood not thoroughly cleansed, the chest becomes deformed, and middle ear disease and deafness are constant occurrences in the victims of adenoids. These cases should be properly treated and responsibilities of the parents aroused.

The last group I mention is a very large one, and it can, I think, only be dealt with by skilful and gradual organization. Many children not naturally robust become, particularly in the summer, pale, languid, irritable, and highly nervous. No actual disease is discovered, though some enlarged glands in the neck may raise a suspicion of early tuberculosis. Among the more well-to-do such children are promptly sent to a bracing seaside or inland resort, and lessons stopped or reduced to a minimum. Poor children cannot be got away like this and are often in a worse plight at home than they are at school. Yet we cannot escape from the fact that many severe illnesses result from the neglect of this early sign of failure of health, and that it would be a great step

forward if some scheme could be gradually evolved by which these cases could be drafted to country or seaside convalescent homes in touch with country schools. An organisation of a system of convalescent homes would be required, and the whole undertaking would need the greatest caution and watchfulness in order to prevent the immediate abuse that would spring up as surely as it has in our hospitals. The present splendid effort of the Lord Mayor of London on behalf of cripple children is an encouragement to hope for some further steps in the direction of that true education which strives to preserve the *mens sana in corpore sano*.

Dr. Langford Symes (Dublin), Mr. W. J. Abel (Nottingham), and Dr. Johnston Weir (Jarrow) urged the training of teachers.

Dr. Sidney Davies (Woolwich) pointed out the necessity for systematic medical examination owing to the fact that heart disease occurred so often with slight subjective or objective signs of rheumatism in children.

Dr. Webb Fowler (Coventry) differed from the opinion that rheumatism was essentially urban ; in his experience there was just as great prevalence in rural districts.

The general opinion expressed by the speakers was strongly in agreement as to the extent of the silent ravages of rheumatism in childhood.

PROBLEMS OF SCHOOL ATTENDANCE.

By E. S. Ayling, Esq.,

Divisional Superintendent, London County Council.

In this paper I desire to call the attention of the Congress to certain conditions, other than infectious disease, which affect the attendance of children at school, and which specially come under the notice of school attendance officers, who are in daily contact with people of the poorest class.

Main Causes affecting School Attendance.

In a poor district the main causes which seriously affect school attendance are poverty, uncleanness and their attendant evils. Whatever controversy there may be with reference to the causes of poverty there can be no doubt that amongst the ranks of the unskilled labourer some of the most depressing phases of life are to be found, and that their poverty may be traced to intermittent work and consequent insufficient earnings. In a large majority of families of this class the mother is unfortunately compelled to go to work to help to maintain the home. As a rule she is engaged in work of the hardest and most badly-paid description, exhausting the physical strength which should be devoted to the nourishment and care of her children. Moreover, her absence from home too frequently means the neglect and improper feeding of the children.

An unskilled labourer, when in full work, barely earns a living wage, and when he is thrown out of work his family immediately feel the

pinch of poverty. The children of such people, together with the children of worthless parents, suffer terribly during the winter from want of proper and sufficient nourishment and clothing.

Voluntary agencies do good work in endeavouring to cope with the problem of feeding necessitous school children, but their operations are necessarily limited, and the fact remains that many children are underfed. Many parents send their children to school hungry, whilst others feel compelled to keep them away from school because they cannot provide them with a breakfast. Such children are insufficiently nourished, and their consequent weakened physical condition renders them more susceptible to illness.

The operation of the Provision of Meals Act should remedy this evil. Furthermore, the criminally negligent parent, who generally escapes punishment under the present system, will, if the Act is rigorously administered, either have to pay for the food supplied or suffer the just punishment which his negligence deserves. If this Act is wisely administered, a great improvement in the health and development of necessitous children may be anticipated.

The want of boots and clothing affects school attendance to a greater extent than want of food. This difficulty would be much greater were it not for the kindly sympathy and help afforded by voluntary agencies, and especially by teachers in poor schools. It is pitiable to visit a poor school on a wet wintry day and see many of the children wearing boots thoroughly soddened by the rain, and with the soles almost torn from the uppers. Unquestionably the seeds of many illnesses are sown in this way. In towns especially it is dangerous for children to go about bootless. The result of this practice is frequently seen in the absence of children from school suffering from bronchitis and from septic wounds in the feet caused by getting the feet cut with broken glass and flints. Boot clubs have been successfully organised in many of the poorer schools. This plan might with advantage be extended to all poor schools.

In cases of out-door relief the guardians of the poor rarely give relief in the form of clothing or boots ; but as it is a condition of out-relief that the children shall attend school regularly, it seems to me that the guardians should also provide necessary clothing in necessitous cases. Unfortunately, children whose physical condition has been weakened by underfeeding soon fall a prey to illness when, in addition, they are insufficiently clothed.

Although poverty and under-feeding are inimical to regular school attendance, uncleanness presents an even greater difficulty. Prior to the introduction of the London County Council cleansing scheme thousands of children were known to be attending school in a verminous condition. Apart from the evil physical effect on the children consequent upon the personal suffering, it can readily be conceived that they are not in a fit mental state to receive the full benefit of the education provided. Moreover, verminous children who may already be suffering from minor complaints are not so quickly cured as clean children, and are more susceptible to the contraction of diseases of a serious nature. They are, too, a direct source of contamination to other children.

Under the Council's scheme nurses visit the schools and make a general examination of the heads and clothing of the children. In verminous cases notices are sent to the parents warning them that unless

the children are at once cleansed they will not be allowed to attend school, and advising them as to the treatment for the removal of the vermin. Should the child still remain verminous it is excluded, and the parent summoned to the police-court for the absence of the child from school, upon the ground that the law provides that a child must be sent to school in a condition fit to be admitted. In the majority of cases penalties are inflicted. The scheme is very successful in London. Owing to the tactful action of nurses, teachers and attendance officers it has only been necessary to prosecute in a small percentage of cases. But it has been found that a considerable period often elapses before a child is sufficiently cleansed to resume attendance at school. To obviate this delay the Council are promoting a Bill in Parliament under which a compulsory cleansing of children and clothing will probably be effected in a few days.

Scabies is prevalent in the crowded areas of London, often attacking whole families, and these the poorest and most neglected. This disease can now be rapidly cured ; but the remedy of special baths and of absolute cleanliness is almost unattainable by the class of people affected, even if they were not ignorant of the elementary principles of cleanliness. The local sanitary authority should have power to compel people suffering from scabies to submit themselves to special treatment by the medical officer of health.

Illness, not infectious, very largely affects school attendance. Amongst children of the poorest class this difficulty is aggravated in consequence of the parents being unable or unwilling to seek medical aid until the complaint has seriously developed. These people are compelled, by force of circumstances, to obtain medical relief for their children at the hospitals.

Serious illnesses arise to children suffering from bronchitis, etc., from the practice of taking them through the streets to the hospital in inclement weather. Whilst at the hospital the parents are frequently compelled to wait for long periods, first to see the doctor and then to obtain the medicine. It should be remembered that many children who are kept waiting at the hospital are sickening for some infectious disease, and that other children run a serious risk of infection. It would, I think, prevent much serious illness amongst poor children if medical attention from the hospital could be given them at their homes in cases where it is dangerous to take them out of doors, and also if arrangements were made at the hospital whereby the period of waiting there could be lessened.

It may be interesting to note here that recent statistics of the number of children found in the streets during school hours show that over 70 per cent. are absent from school in consequence of personal illness, or by exclusion from school on account of infectious disease in the homes.

It will be observed that in this paper I attribute the causes which adversely affect school attendance to the ignorance rather than to the indifference of the parents of poor children, and also to the deplorable conditions under which they live. I suggest that the issue of a notice to parents by the local sanitary authority, setting forth some simple rules for health, feeding and cleanliness, would tend to remove the appalling ignorance on these subjects which now exists among poor people, and would have far-reaching results in the direction of an improvement in health of the children.

Dr. R. P. Williams (Sheffield) and Dr. Forman (London) insisted upon the necessity of girls wearing their hair short in elementary schools.

Mr. Chamings (L.C.C. Attendance Staff) pointed out the impossibility of attaining to this ideal state of affairs owing to the prejudice of parents.

Dr. Forman considered the dangers of the hospital waiting-room exaggerated.

Dr. Niven and Dr. Sidney Davies agreed that something more was required than the hospital out-patient department, some visiting staff to the homes being necessary.

Mr. Chamings strongly supported Mr. Ayling's contention that much harm was done in the out-patient waiting-room.

THE LOWER LIMIT OF AGE FOR SCHOOL ATTENDANCE.

By Arthur Newsholme, M.D.

In March, 1902, I read a paper on this subject at a meeting of the Childhood Society,[1] in which I urged that the attendance at school of children under five years of age should be prohibited, as it involved unnecessary and serious risk to health, was educationally worthless, and was contrary to the interests of public economy.

The increased local financial burden of education caused by the passing of the Education Act, 1902, drew further attention to this subject, and led Education Committees to consider this among other possible ways of economising. A considerable number of such committees decided not to continue to provide accommodation for children under five; and this action was endorsed in the Education Code for 1905, the prefatory memorandum to which contained the following remarks by Mr. Morant:—

"Children under five years of age are not required by law to attend school, and there is reason for believing that the attendance of such children is often accompanied by danger to health. There is also a mass of evidence pointing to the conclusion that a child who does not attend school before six years of age or more will, in general, compare favourably at a later age with a child whose attendance began at an earlier age. On the other hand, there is no doubt that parents in certain areas desire that their children should attend school as soon after the age of three as possible, or even before that age. The extent to which parents in any locality desire that very young children should attend school, and the weight which should be attached to the wishes of the parents in this matter, are no doubt sufficiently well known to the Local Education Authority to enable them to deal on their own responsibility with the question of admitting or excluding children under five years of age. In these circumstances the Board will now give the Local Education Authority complete discretion on this point, and it will be held under Article 53 that a direction of the Local Education Authority to the effect that children under five shall be refused admission to any particular

[1] A Plea for the Exclusion of Children under Five Years of Age from Public Elementary Schools, *Public Health*, July, 1902.

school or schools is a reasonable ground for excluding such children from the school or schools concerned. If the Local Education Authority so wish different parts of their area may be treated differently in this respect."

Notwithstanding motives of economy and this official expression of opinion, children under five, as shown in Table I. (Appendix) still form about ten per cent. of all the children in the elementary schools of England and Wales. It is appropriate, therefore, that at the meeting of this International Congress the subject should receive discussion; and I have accepted the invitation of the section to open the discussion. As England appears to be almost alone in having such a large proportion of its children in attendance at school prior to the age when compulsory attendance begins; and as, furthermore, compulsion in the majority of countries does not begin until the child attains the age of either six or seven years,[1] instead of at the age of five, as in England, we may hope for guidance from our foreign colleagues. The experience of some of these foreign countries will be of value in regard to crèches, which are the alternative to school-attendance under five, in the minority of cases in which exceptional circumstances render the mother unable to give the necessary domestic care to her child; in Germany, and still more in France, such crèches are very numerous.

Table I. shows that approximately one-tenth of all the children in our elementary schools are under five years of age, while three-tenths are under seven years of age. Although it is doubtful if educational advantage commensurate with the risk is secured by the attendance at school of children between five and seven years of age, and although I am strongly of opinion that the age of admission to school might be raised to six with advantage to education, health, and economy, I confine my remarks to the question whether it is justifiable in the interests of the children, of their parents, or of the ratepayers and taxpayers, that one-tenth of the teaching staff, one-tenth of the expenses of administration, and almost one-tenth of the total school accommodation should be used for children less than five years old.

Economical Aspect of the Problem.

In 1904–5 the cost of elementary education in England and Wales was £18,398,618, or 72s. 10d. per scholar in average attendance. This amount does not include the cost of "special" schools. Of the cost per scholar 46s. 11d. per scholar was spent on teachers' salaries, 11s. 7d. on maintenance, including rent, rates, repairs, 3s. 5d. on administration—officers other than teachers—and 8s. 7d. on loan charges. If we assume that each scholar in the infant school costs only 60s., then the children under five years of age attending school cost in 1904–5 the total sum of £1,749,711. Of course, if such children were excluded from school, a saving to this extent would not at once be secured, as the expense of buildings would remain. In small schools, especially in country districts, a considerable share of the accommodation thus saved could, however, be utilised for older boys or girls, and thus expenditure on additional buildings be avoided.

[1] Statement as to the Age at which Compulsory Education begins in certain Foreign Countries (Parliamentary Return, 1906, Cd. 2968).

Educational Advantages to Children under Five?

What educational advantage, if any, is secured to the children attending school at this early age, and is it worth the large sum now expended on it? In the former paper to which I have referred, I argued this point in some detail. At that time the instruction given to such children as well as that to children between five and seven years of age, was much less sensible than that now given. It is now generally agreed, as officially stated on behalf of the Board of Education,[1] that—

"formal teaching, even by means of Kindergarten occupations, is undesirable for children under five. At this stage it is sufficient to give the child opportunity to use his senses freely. To attempt formal teaching will almost inevitably mean, with some of the children, either restraint or over-stimulation, with consequent dangers to mental growth and to health."

This point is further emphasised by Mr. Cyril Jackson, Chief Inspector of the Public Elementary Schools, in an introductory memorandum to reports by Women Inspectors of the Board of Education on this subject (1905). He says:—

"It will be seen that there is complete unanimity that the children between the ages of three and five get practically no intellectual advantage from school instruction . . . . . .

"The children admitted later can in six months or a year reach the same standard of attainment as those who have been in the school for two years previously.

"It has always been claimed that the children admitted later are less easy to discipline. Even this seems doubtful, for these children very soon fall into the order of the school."

The educational uselessness of school attendance under five years of age may, therefore, be regarded as officially endorsed. Dr. Kerr,[2] however, dissents from this view. He objects to the past want of intelligence of the curriculum for children aged three to five, and urges this as a reason "for improving the kind of education and instructing the teachers," as children "learn more in the years from three to five than they will learn in the same period at any time subsequently." In another part of the same report Dr. Kerr lays stress on the fact that "during the time it is in the infant department the child has chiefly to grow. Nutrition and sleep are its chief functions." Education is, of course, extremely active during this period, but, as Dr. Kerr shows, it is teaching in cleanliness and discipline, in marching, walking, and running that is desirable. "Pens, pencils, paper, pins and needles should not be handled in school by children below six," though real freehand drawing is valuable. The school is not, in my opinion, the best place for such training as is desirable at these ages. It is most naturally and most effectively acquired at home, and in healthy play with other children; or in crèches in charge of a nurse rather than a teacher, in the exceptional instances in which the mother cannot give the requisite attention.

[1] Suggestions for the Consideration of Teachers . . . in Public Elementary Schools 1905, Cd. 2638, p. 22).

[2] Report of the Medical Officer (Education) to the London County Council for the year ended Mar. 31, 1905, p. 13.

THE EVILS OF SCHOOL ATTENDANCE UNDER FIVE.

First, are the

Educational Evils,

which have been already sufficiently indicated in the remarks previously quoted. Even with the regulations of the new Code it cannot be said that these evils have been entirely prevented. Thus, following on the excellent sentiment quoted above from the "Suggestions to Teachers," the following remark appears :—

"Formal lessons may be given to children under five years of age, but any attempt which may be made to reach a definite standard of knowledge of reading, writing, and numbers at the age of seven should be subordinated to the more general aims of physical and mental development and training in habits of obedience and attention."

It may be hoped that in later Codes the teaching of reading from books or writing on slates or paper, will be specifically prohibited for children under five, or, better still, under six years of age. At such ages injury to the undeveloped eye almost necessarily results from attempting to do near and fine work. When this prohibition has come into operation one of the great

Dangers to Health

associated with early school attendance will have gone. There remain, however, two dangers which cannot be escaped under present conditions of school-work. These are

1. The general effects of breathing polluted air, and in particular
2. The occurrence of communicable diseases.

The evils of aggregation are not sufficiently acknowledged. To collect from forty to seventy young children in one class-room, and from 150 to 600 in an entire infant school implies risk of serious magnitude. Schools necessarily involve aggregation, and scholars depend on it for a large part of their social education. Aggregation causes, however, physical mischief to the child. This risk is greater, and the social education, which is the sole benefit directly dependent on aggregation, is less with young children than it is with their elders ; and a child under five —personally, I should say a child under six or even seven—will not acquire appreciable good by way of social education to counterbalance the relatively high risk which it runs from aggregation at that tender age ; and what little good it may acquire would come to it inevitably in the course of its later curriculum, if it survived to the ages in which aggregation is socially useful. The problem of the Public Health Authority and of its Education Committee is to reduce the evils of aggregation to the lowest attainable minimum, and I submit that this is not done when it is applied to children under five.

The first difficulty is the too small amount of floor-space occupied by each scholar. Although a large floor-space would not compensate for deficient through-ventilation in each class-room, it would greatly facilitate such ventilation.

The second difficulty is the large size of the classes. At the beginning of the school year the number in a single class may be only forty, but towards its end it commonly becomes seventy or even eighty, and

the small floor-space allowed by the rules of the Board of Education is much reduced. Such large classes are not only disadvantageous educationally, preventing thorough teaching and a reasonable amount of individual attention to scholars; but they also involve excessively large class-rooms, and—given in the two cases an equal amount of floor-space for each scholar—ventilation is more difficult and less efficient in large than in small class-rooms. Although the usual impression is to the contrary effect, the correctness of this statement is well established. Thus Dr. J. S. Haldane, F.R.S., and Mr. E. H. Osborn[1] say :—

"It is evident that the form and general construction being the same, the larger a room the more slowly will the air in it be changed by penetration of air through the walls, etc., for the extent of walls, roof and floor surface does not increase in the same proportion as the cubic capacity. The surface increases as the square, and the capacity as the cube, of any corresponding diameter for rooms of the same shape. Thus an increase of eight times in the capacity will correspond to increase of only four times in the surface. Very large rooms, when unprovided with openings for ventilation, may thus contain very foul air, although the air space per person is very large."

Most schools have only natural ventilation, and are dependent for ventilation on windows, doors, etc. Under such conditions size of room does not compensate for deficient exchange of air, and, *with a given allowance of floor-space to each child*, the small room has a definite advantage over the large room.

Increase of floor-space for each child and diminution of size of classes evidently involves serious economical considerations, but the additional expense ought to be faced; and probably it would be almost met by economising on the unnecessary and educationally useless accommodation now devoted to children under five.

In my former paper on this subject, I remarked that :

"With ordinary ventilation, which is all that is provided in the majority of schools, the atmosphere of an average school-room is as much fouler than that of the average house of the poor, as is that of a church during a Sunday evening service than that of a middle-class house. . . . It will be observed that I am not speaking of the bed-rooms of the poor; they will be occupied under the same conditions, whether children under five attend school or not. So far as their life during the day is concerned, the *vast majority* of children attending elementary schools are under more favourable conditions at home than at school."

On this point I am able to quote the high authority of Dr. Haldane :

"I am quite sure it is, as you say, impossible to get decent ventilation except by fans in elementary schools with the present cubic space allowance. The carbonic acid is far higher than in the worst dwelling-rooms we found in Dundee, and the statement you quote from yourself (the first sentence above) is certainly correct."

The observations made by Drs. Carnelley and Haldane at Dundee show that the air in naturally-ventilated schoolrooms was worse than that not only of the dwelling-rooms, but also of the bed-rooms of the poor. Thus :

[1] First Report of the Departmental Committee on the Ventilation of Factories and Workshops, p. 110 (1902, Cd. 1302).

" Rooms in one-roomed houses (the worst and most crowded) gave in the middle of the night an average *excess* of 6·6 volumes per 10,000 of CO_2 and 60 micro-organisms per litre of air, with an average of 212 cubic feet per person; while the naturally-ventilated board schools gave an average *excess* of 15·1 volumes of CO_2 and 152 micro-organisms, with an average of 168 cubic feet per person."

To the difficulties of ventilation when large numbers are closely congregated, must be added the nuisance arising from the aggregation of such a large amount of clothing, much of which is impregnated with organic matter and is too seldom washed or renewed. It must be agreed, therefore, that both in respect of uncleanliness and of deficient ventilation, the condition of the average scholar, and especially that of the youngest children, is worse at school than at home. That

Infectious Diseases

are spread to a large extent, by the aggregation of children in schools, is verified almost daily in public health administration, and such aggregation being essentially an evil, we have to strike a balance between educational advantages and the risks to health. At ages under five these risks are greater than at higher ages, and, there being no counterbalancing advantages, a serious waste of health and life is implied. Tables II. and III. in the Appendix bring out the extent of the excessive risk at these ages involved in attacks of the four most serious infectious diseases of school-ages. After six years of age the attack-rate of both measles and whooping-cough rapidly declines, and the fatality among those attacked is relatively small after the fourth year of life. In diphtheria and scarlet fever the attack rate does not decline so rapidly; but the fatality among those attacked becomes relatively small after the age of five. Obviously, therefore, there is great advantage to children in postponing the age at which attack, if any, of these diseases occurs; for not only is a later attack less likely to be fatal, but, as Whitelegge has shown for scarlet fever—and probably the same rule applies for other infectious diseases—postponement of an attack diminishes the likelihood of subsequent attack. Can attack of these infectious diseases be postponed, and in the aggregate, can the number of attacks among a given number of children be diminished materially by postponement of school attendance? The point cannot be settled directly by statistics. The nearest approach to such statistical evidence is furnished by some local statistics as to measles which I have collected, though these are necessarily scanty.

They relate to 596 cases of measles. Of these seventy-three cases occurred in houses in which only one child lived; seventy attended school, three did not; 128 cases occurred in houses in which the only other children were 277 protected by previous attack; of the 128 attacked, 118 attended school, ten did not; 395 primary cases occurred in houses in which there were 975 other children; of this number 517 were protected by previous attacks, 631 were not thus protected; 344 secondary cases occurred, 287 escaping although presumably susceptible. Of the 395 primary cases, 380 attended school, fifteen did not. The relationship to school-life is better shown by splitting up the cases into age groups.

AGE DISTRIBUTION OF PRIMARY CASES OF MEASLES.

Age.	Attended School.	Did not Attend School.
0–1	—	4
1–2	—	8
2–3	4	10
3–4	63	2
4–5	120	1
5–7	295	1
7 and upwards	97	—

One third of the total children aged 3 to 5 in Brighton attend elementary school; among these nine-tenths of the primary cases of measles occurred. Even if a large allowance be made for more complete notification of cases among scholars, it is, I think, certain that school-attendance greatly increases the risk at these ages.

Dr. Kerr [1] lays stress on the fact that 25 per cent. of the children entering school at three years of age had already had measles. Some further light is thrown on this interesting point by the statistics in Table IV. (Appendix). For some years past the history of each patient admitted to the Brighton Isolation Hospital with scarlet fever or diphtheria has been ascertained, as to whether they have already had attacks of other infectious diseases. The total cases of children of school ages for which this has been ascertained is only 772, which, when split up according to age, leaves somewhat scanty data for the different groups. Notwithstanding this fact, the percentages give some idea of the age incidence of attack from the infectious diseases enumerated in the Table. It has been found necessary to give under each heading a group of doubtful cases, in which information could not be obtained. It will be seen that of the children aged three to four from one-fifth to one-fourth had already had whooping cough, and about one-third had already had measles; and that of the children aged four to five over half had already had measles, and about half had already had whooping cough. These two diseases are instanced because they are the most fatal diseases of childhood; but the whole of Table IV. is instructive. The percentage of children at the age of three to four who have already had measles is higher than that given by Kerr. None of these percentages, however, settle the point at issue; nor do the figures in Tables II. and III. (Appendix), because no distinction is drawn except in the scanty figures relating to my local experience (Table in text) between the first and subsequent cases in each household. One has, therefore, to fall back upon experience in administration, which always shows that attendance at school increases the risk of importation of infection into homes; and upon the *à priori* high degree of probability that if children were not admitted to school until after five years of age the results would be that—(*a*) fewer families would become infected, and (*b*) the children of those families still becoming infected would be infected on the average at a higher age, with the result that fewer deaths would occur.

It being clear that great expense is being incurred by attendance at school of children under five; that no educational advantages result from such attendance, but that, on the whole, it is an educational evil, and is furthermore the cause of serious injury to health and loss of life,

[1] Annual Report of the Medical Officer (Education), London County Council, 1904, p. 13.

what are the reasons which have led to such early attendance, and what are the administrative causes leading to its continuance? This introduces us to

THE PARENTS' POINT OF VIEW.

It is urged that if the children under five did not attend school, the older girls, especially those twelve to fourteen years old, would be kept at home to tend them. This difficulty is a real one, though it cannot be contended that the best way out is to convert a large portion of an elementary school into unwieldy crèches. There can be little doubt that if the rule against admission to school of children under five were universally and systematically enforced, and if some provision were made for exceptional children under five, it would be quite practicable to overcome this difficulty.

The exceptional children are in particular those whose mothers are obliged to go out to work. It is noteworthy that in 1901 the proportion of the total married and widowed women in England and Wales engaged in occupations other than domestic indoor service was 11·8 per cent., the proportion varying at different ages, as shown below:—

ENGLAND AND WALES, 1901.
PROPORTION OF MARRIED AND WIDOWED WOMEN ENGAGED IN OCCUPATIONS OTHER THAN DOMESTIC INDOOR SERVICE.

Ages	15–	20–	25–	35–	45–	55–	65–	75 and upwards.
Per cent. occupied	11·9	10·9	10·0	13·1	16·0	17·5	14·4	7·2

It cannot be said what proportion of these women had children under five—probably relatively few. It is lamentable that so many married and widowed women should need to engage in non-domestic work; but if we admit the necessity for their industrial employment, and the desirability of helping them by tending their children, at the outside only 10 per cent. of the children aged three to five need such tending owing to this cause. The total population at these ages at the census 1901 was 1,442,026, and about a third of this number were attending school, instead of the one-tenth for whom extra-domestic occupation of the mother renders this desirable. To this number must be added cases where, although the mother does not go out to work, home conditions are extremely unfavourable. These instances would be found by domiciliary visitation; and attendance at school or the crèche, which I hope may replace it, should be made conditional on the result of such home visits. Evidently there is scope for saving, while still aiding the cases in which such help is needed.

THE PROVISION OF CRÈCHES.

Such cases can be better aided by the provision of crèches rather than of school accommodation. The matter is well put by Mr. Jackson in the report already quoted (pp. ii. and iii.):—

"It would seem that a new form of school is necessary for poor children. The better parents should be discouraged from sending the children before five, while the poorer, who must do so, should send them to nursery schools rather than schools of instruction.

"No formal instruction" is the burden of all the recommendations, "but more play, more sleep, more free conversation, story-telling and observation." The aim of the big-town infant school is too often to

produce children who at the age of six and a half have mastered the mechanical difficulties of Standard I. work. It should be to produce children well developed physically, full of interest and alertness mentally and ready to grapple with difficulties intelligently.

"In this connection there is a general agreement that the best-informed teacher is not necessarily the best baby-minder."

So also in Miss Callis's report in the same volume the following statement is made (p. 104) :—

"What is wanted for children under five is more the kind of aptitude and training which would fit a girl to become a nurse. Brightness, sympathy, and love of little children are essential as well as tact in managing children."

Such crèches should not be made to accommodate more than twenty-five children in two or three rooms, and there should be arrangements for feeding the children as well as for general care. It would carry me too far afield to discuss the details of administration of crèches. There would often be no need for new buildings, as houses in the neighbourhoods where they are needed could be adapted for the purpose. By gradual extension of present crèches, by the combination of voluntary and official efforts, by the substitution of nurses for teachers, and by the careful selection of babies to be admitted to such crèches, a great improvement in the health of babies needing nursing and feeding could be secured, at a much less cost than that now involved in the maintenance of the inordinately large classes in our infant schools.

An Interim Reform.

The exclusion from school of children under five will probably be left as at present to the option of Local Authorities. On this point Mr. Hackforth, M.A., Clerk to the Brighton Education Committee, sends me the following suggestion :—

"It has occurred to me that there is a way in which your suggestion might be carried out without financial loss to the committee, provided that the Board of Education would make a slight alteration in their method of calculating the grant for infants' schools. The average attendance on which the grant is paid is, as you are no doubt aware, obtained by dividing the total number of attendances made during the year by the number of times the school has been open. Already on the annual returns from which the grant is calculated the attendances made by children under five and those over five have to be entered separately ; they are then added together before being divided by the number of school meetings in order to obtain the average for the payment of grant. If the Board would allow the number of school meetings during the year to be entered separately—(1) for children over five, and (2) for children under five, and for each of these to be divided into the corresponding total number of attendances in order to obtain a separate average attendance for children over and under five, you will see that there would be no loss of grant if the younger children were excluded from some school meetings which the elder children were allowed to attend. This is a very small alteration in the method of calculating grant, and I think that we might reasonably expect the Board of Education to introduce it if we could show that there were good reasons for doing so."

A representation from this Section to the Board of Education to the effect suggested in the preceding remarks would, I believe, be favourably received, and I hope that a resolution to this effect will be passed.

APPENDIX.

TABLE I.

ENGLAND AND WALES.—For every 1000 scholars on the school registers on the last day of each school year, the following was the number at the ages named :—

Year.	Under 5.	5-7.	All Ages over 7.	All Ages.
1895-6	105	210	685	1,000
1896-7	107	207	686	1,000
1897-8	112	214	674	1,000
1898-9	115	214	671	1,000
1899-1900	110	213	677	1,000
1900-01	107	214	679	1,000
1901-02	104	208	688	1,000
1902-03	102	208	690	1,000
1903-04	101	206	693	1,000
1904-05	96	209	695	1,000

TABLE II.

PREVALENCE AND FATALITY OF MEASLES AND WHOOPING COUGH IN ABERDEEN IN 20 YEARS.*

Age.	Attack-rate per 1000 of Population at each Age.		Fatality, i.e., No. of Deaths per 100 Persons attacked at each Age.	
	Measles.	Whooping Cough.	Measles.	Whooping Cough.
0	44	69	13·9	12·5
1	86	74	10·0	10·1
2	86	73	3·4	3·3
3	79	65	1·6	2·2
4	75	54	·9	1·6
5	86	52	·7	·5
6	75	36	·5	·7
7	47	19	·5	·1
8	21	9	·4	·3

TABLE III.

PREVALENCE AND FATALITY OF SCARLET FEVER AND DIPHTHERIA IN LONDON, 1905.

Age.	Attack-rate per 1000 of Population at each Age.		Fatality, i.e., No. of Deaths per 100 Persons attacked at each Age.	
	Scarlet Fever.	Diphtheria.	Scarlet Fever.	Diphtheria.
0	2·5	1·9	12·7	26·4
1	7·1	5.0	13·6	21·4
2	13·1	6·7	9·1	13·2
3	19·8	7·8	4·9	10·8
4	22·5	7·8	2·6	9·8
5-10	16·8	3·9	1·6	6·3
10-15	1·9	1·4	0·8	2·4

* Wilson, G. N., Public Health, Vol. XVIII., p. 69.
Laing, J. S., and Prof. Hay, Public Health, 1902, Vol. XIV., p. 594.

TABLE IV.

TABLE SHOWING OUT OF 772 CHILDREN ADMITTED TO THE BRIGHTON BOROUGH FEVER HOSPITAL, THE PERCENTAGE AT DIFFERENT AGES WHO HAD OR WHO HAD NOT HAD THE FOUR MOST COMMON INFECTIOUS DISEASES.

Children at Different Ages.		Measles.			Whooping Cough.		
Age.	Number.	Had.	Doubtful.	Not Had.	Had.	Doubtful.	Not Had.
0–3	76	27·7	15·8	56·5	9·2	23·6	67·2
3–4	83	31·3	18·1	50·6	22·8	19·3	57·9
4–5	90	58·9	14·5	26·6	44·4	17·8	37·8
5–6	100	57·0	16·0	27·0	39·0	19·0	42·0
6–7	78	73·1	12·8	14·1	53·7	19·3	27·0
7–8	67	76·1	10·4	13·1	55·2	17·9	26·9
8–10	103	85·5	7·7	6·8	55·3	15·5	29·2
10–15	175	74·9	13·6	11·5	62·4	17·0	20·6

Children at Different Ages.		Chicken Pox.			Mumps.		
Age.	Number.	Had.	Doubtful.	Not Had.	Had.	Doubtful.	Not Had.
0–3	76	2·6	29·0	68 4	—	30·2	69 8
3–4	83	14·5	21·7	63·8	2·4	25·4	72·2
4–5	90	31·1	22·2	46·7	3·3	33·3	63·4
5–6	100	27·0	18·0	55·0	7·0	29·0	64·0
6–7	78	30·7	24·4	44·9	7·7	35·9	56·4
7–8	67	44·7	20·9	34·4	7·4	35 9	56·7
8–10	103	41·7	14·6	43·7	16·6	25·2	58·2
10–15	175	38·7	27·5	33·8	23·5	28·0	48·5

Dr. A. H. HOGARTH (London), who opened the discussion, said that a policy of exclusion frankly admits the failure of our system of education; it does not prove that these infants ought not to be in school, for there is no doubt that the two years, three to five, are as important as any in a child's life, both from a physical and from an educational point of view. I submit, therefore, that the remedy for the existing evils in the infants schools lies, not in the exclusion of infants, but in the improvement of the conditions of schools.

For an infant school—or kindergarten, as it is more aptly called in other countries—there are four essentials, and it is impossible to discuss the present question upon its merits unless these four conditions are admitted as essential.

1. A suitable curriculum in accordance with the physiological requirements of infant life.
2. Hygienic surroundings as regards lighting, space and ventilation.
3. Teachers who show special aptitude, or who have had special training in baby management. The posts should not be filled by inexperienced pupil-teachers.
4. Some provision for medical supervision.

The first essential has not yet been realised in England, and the others do not obtain in the majority of schools; hence many fallacies and side issues have been introduced into the consideration of this question. Given, then, these essential conditions, which are no mere idealist's dream, but which already exist in at least one school in England, the general principle of admission or exclusion must be discussed from the following points of

view: (1) medical; (2) educational; (3) individual and social; (4) economic; and there is something to be said for and against on each of these heads.

1. *Medical grounds.*—Only two arguments can be put forward on medical grounds for the exclusion of infants under five. They are the danger of infectious diseases (of which measles and whooping-cough are alone of importance) and the unnatural restraint to which infants may be subjected during a part of the day. Both dangers are reduced to a minimum if the four essential conditions are fulfilled. The evil of aggregation is acknowledged by all, but Dr. Newsholme admits that the question of postponement of age incidence for measles has not been settled by statistics. It is certain that infant schools are focuses for the spread of measles and whooping-cough, but it is equally certain that exclusion alone would do little to reduce the mortality of the disease. But in this connection there are two very important points in favour of the admission of infants at an early age; one is that all parents, ignorant and intelligent alike, are more likely to realise the seriousness of such illnesses if their children are at school, and if hopes for the practical co-operation of teacher, doctor, and parents in education are even partially realised; and secondly, the children who return to school after such illnesses will be under medical supervision. Measles is seldom serious in itself; it is the after results which are so serious, and which lead on to the development of tuberculosis, and at present no effective steps are taken to prevent this state of affairs.

I must leave to other speakers all the other arguments on medical grounds in favour of admission of children to school at three years of age, only premising that these grounds constitute a very strong case for their admission. The whole of Dr. Newsholme's long argument about ventilation amounts to this, that infants must be excluded from school because the schools are more unhealthy, more unclean than their already unclean, unhealthy homes. But this is not in accordance with my daily experience of the schools and my intimate knowledge of the homes of the poor. Dr. Carnelley's and Dr. Haldane's experiments in Dundee were carried out many years ago. It is true that the schools are not even now all that can be desired, but there has been some advance during the last ten or twenty years.

2. *Educational grounds.*—Dr. Newsholme has spoken of the attendance of infants under five at school as being "educationally worthless." What do we mean by education? Everyone has opinions about education. Everyone also has opinions about ventilation and about diet, and yet there is more nonsense talked about these three subjects, even by experts, than about any other subject under the sun. There is as yet no science of education. But surely there can be no two opinions about the great educational importance of these two years, if only the curriculum is in accordance with the physiological requirements of the infants. And yet his Majesty's chief inspector of schools has delivered himself thus: "It will be seen that there is complete unanimity that the children between the ages of three and five get practically no intellectual advantage from school instruction." Obviously, the fault is with the system; the fault is with the Board of Education itself and with its Code. The sooner it is mended, the better for education. Infants of this age should be taught to play, and they should be taught to play in classes. Play is an education in itself.

"Play, however, in the mind of the biologist-educator is not at all points identical with the play of the modern kindergarten or play-school. It is not games, still less pretty employments devised by adults and imposed at set times by authority. It is the natural manifestation of the child's activities; systematic in that it follows the lines of physiological development, but without the hard and fast routine of the time-table. The infant must be taught, firstly, to exercise the larger muscles and practice of coarser adjustments—running, swinging, climbing, throwing, shouting, laughing, etc.; then the use of tools or toys that involve the larger movements of hand and arm. Playing with sand or water, digging, drawing from the shoulder, moulding, carrying, and drawing things from place to place, rubbing, arranging objects in order, brick-building, etc., these activities are delighted in by children all the world over. Till they are about seven years of age, then, our business as the educators of children is to provide them with the means of exercising those various activities under the most favourable circum-

stances possible, and with the maximum spontaneity, originality and enjoyment."[1]

Now it is found in practical experience by competent infant teachers that average children who attend infant schools at three years of age, and are educated in accordance with such old-fashioned (for they are in accordance with nature) and approved ideas, make much more rapid progress after six years of age, when they are instructed in reading, writing, and other subjects. These infant schools already exist under the direction of those headmistresses who realise the meaning of the word education.

Now such biological education of infants is not carried out in the homes of the poor, and, in my opinion, the only place in which it can be effectually undertaken is some modern infant school, or kindergarten, based upon the four essential conditions already stated.

3. *Individual and Social grounds.*—We need not consider the children of well-to-do parents, though they very seldom receive the right kind of education in their infancy. But in the case of a poor and ignorant family, each individual child ought to derive a twofold benefit, educational and physical, from early school attendance, and against this must be placed the possible risk of contracting measles and whooping-cough. The conditions are different in urban and rural districts. In rural districts, perhaps, an individual child is better at home, first, on account of the difficulty of transport in bad weather, and secondly, the general home surroundings of the country are more satisfactory, and the child is allowed more freedom; but, even so, the home education cannot be considered adequate.

4. *Economic grounds.*—Granted that the education of these infants costs one-tenth of all the expenses of administration, yet it is often said that no money is wasted which is spent on education. That, of course, is untrue. Let us rather say, no money is wasted, even if it be one to two million pounds, which is spent on proper education. And yet this amount is wasted annually on the improper education given to the physically defective and naturally dull children in the elementary schools, of whom 10 per cent. have been found, as the result of careful investigations, to derive practically no benefit whatever from the present course of instruction, and to be a hindrance to the rest. This is no figure of speech; it is absolutely and literally true.

With regard to the establishment of municipal *crèches*, there is little reasonable doubt that this would be a much more costly method than the provision of infant schools, and yet the *crèche* does nothing more for the child than to feed it and to keep it clean. But very difficult social problems, which I have not time to discuss, are involved in this question—(1) the employment of women in factories; (2) the keeping of children at home to mind the babies.

In conclusion, I would urge that we are doing a great duty to every child in placing it for four hours every day in clean and wholesome surroundings.

Mr. J. W. Willis Bund, M.A. (Worcester), said no general rule could be laid down. There were wide differences between schools, and sometimes the school, sometimes the home, was the more unhealthy. To send the children to *crèches* was no solution, for there were grants to schools and none to *crèches*. *Crèche* methods could, however, be employed in schools. So far as the infectious disease question was concerned, school attendance undoubtedly led to the detection of illness at an early stage in some instances.

Mr. R. C. Elmslie (London): There is a preventive side of school hygiene; it is our duty to attempt to alleviate and cure defects in children as well as to educate defective children. It is essential for this purpose that we should be able to see and inspect the children at an early age. It may be pointed out that 70 per cent. of the cases of tuberculous disease of the bones and joints arise before five years of age. Moreover, the severe cases of rickets, those that matter as regards ultimate deformity, and again the common forms of paralysis, arise almost exclusively before five years of age.

[1] "Child Nature and Education," by W. Hoskyns-Abrahall, M.A.

Dr. FRANKLIN PARSONS (London) said that the opinion of medical officers of health who mentioned the subject in their annual reports was almost unanimous against the attendance at school of children under five years of age. This, of course, referred to schools as they now are, not to the ideal infant school of the future as depicted by Dr. Hogarth. Indeed it was stated that in some cases children not on the school books were allowed to attend with their elder brothers and sisters, thus further reducing the air space.

The advisability or not of allowing children under five to attend school will no doubt largely depend upon local circumstances, but in an ordinarily well-regulated cottage home, the speaker believed that the child would generally be better under the care of its mother than in school. The maternal instinct was the most elementary and essential of the motives which influence mankind, and any action which would tend to weaken it should only be taken with extreme care.

Mrs. KIRK (Bradford) spoke from the teachers' point of view. At one time she thought children should remain at home until they were five years old, but now she admitted it would be difficult to manage a large school were it not for the influence exerted at a later period by children first attending school as "babies." She was able to train them in habits of good behaviour to serve as an example to new-comers. There seemed to be a general impression that the very poor children were badly behaved. This did not accord with her experience ; some of the most difficult cases she had to deal with were those of the children of comparatively well-to-do parents. The reasons for believing that in large manufacturing towns children are better in school might be summarised as follows :—

1. She had noticed a distinct improvement in a young child after attending school, owing to the regular routine and the cheerful companionship.

2. The children who have come before five form the backbone of the school, and serve as the ideal standard for those children who enter at the later age.

3. In cottage homes there is no room for the active child of three or four to run about, and in many cases he is made to sit still, fastened in a chair, while the mother does her work. Many of the homes are in busy streets, and if the children are allowed to run about, there is great danger of accidents, and the mother is kept in a continual state of worry and anxiety, and is not in a fit state to train children properly.

4. In an ideal infant school, teachers can do a great deal towards teaching the ignorant mothers, who, in most cases, suffer from defective training in their youth (many having worked in the factory at a very early age), and thereby strengthening and developing the dormant maternal instinct.

Allowing the children to come to school is not encouraging the lazy mothers, for her experience had shown her that it is the thrifty and careful mothers who are anxious to send their children to school. The bad habits possessed by many children are difficult to eradicate at three years of age, and this difficulty will be increased if they are excluded till five. She invited mothers to meet her after school, and her invitation was largely responded to by the mothers, and partly on this account she was able to secure improvement in the condition of the children, particularly those from the poorer homes. The mothers were most willing to take advice but many were dreadfully ignorant.

With regard to health. To a large extent the evils of a badly ventilated class-room could be avoided by liberal use of the playground, and by teaching in the open air. As for measles, cases were more frequent after the holidays than at the end of term, when children had been for a long period attending school under the teacher's observation.

Mr. MUNDELLA (London) doubted if it would be legal to exclude young children from school. The expense of looking after them had been exaggerated. The *crèche*, or infant school, should be in organic connection with the ordinary school.

Dr. H. MEREDITH RICHARDS (London) said difficulties would largely disappear if all infant classes were like those described by Mrs. Kirk. In Croydon it had been decided to limit numbers, never allowing overcrowding,

and never admitting to the baby class in cases in which the floor space was not adequate. At one of the slum schools it was found that it was the local aristocrats who attended the baby class. To sum up, he would be inclined to exclude a large proportion of those now attending and compel the attendance of the more neglected.

Dr. R. H. CROWLEY (Bradford) considered that the ideal from every point of view was that the children should be trained at home. Provision in school is only necessary because of the wrong home conditions into which our so-called civilisation has led us. There is a serious danger of unnecessarily stimulating young children, however carefully hygienic and physiological rules are insisted upon. So long as homes are so bad some children will have to have provision made for them in school. Probably quite as many as at present, because, while a considerable number attend quite unnecessarily, others in some of the worst homes do not now attend. Expenditure will have to be greater, not less, since proper provision must be made and ideal babies' rooms, with suitably-trained teachers, must be provided.

Miss ADLER (London) spoke from the point of view of a manager who had considerable knowledge of the homes from which the children were gathered into school. She had discussed the point with the best type of working-class mothers. Their opinion was, that it was impossible to keep the children locked into the two or three rooms that frequently formed the home, and that the year of life in the street, from four to five years of age, harmed the little ones both morally and physically. Once they had tasted the freedom of the gutter it was more difficult to accustom them to the discipline of the school with its excellent training in good habits and cleanliness. The large majority of witnesses before the Inter-departmental Committee spoke of the great physical improvement visible in children after they had begun to attend school, and there was this further advantage, that it was hoped that in the future they would come under the inspection of the school doctor, and that disease would be detected at an early age. Occupation was necessary for children of four years, and the best type of *crèche* assimilated its methods largely to those of the kindergarten, and the cost of such organisations was probably larger than that incurred by sending children to infant schools. On the other hand, there was much room for improvement in the methods and curriculum of infant schools. One reform which was urgently necessary was the removal of that antiquated piece of furniture, the "babies' gallery," and the substitution of small tables and chairs easily removable.

Mr. PERCIVAL SHARP (St. Helens) pointed out that Dr. Newsholme and Dr. Hogarth had viewed the question from two different aspects. Dr. Newsholme urged the exclusion of children from schools as they are. Dr. Hogarth pleaded for the admission of children to schools as they should be. Mr. Sharp agreed that the vast majority of English infant schools are quite unsuitable for the training of very young children, but urged that, with proper buildings, surroundings, and teachers, the development of the child might well be carried on in such schools. Present economic conditions make it necessary that some provision should be made for such children.

Dr. CUNTZ (Wiesbaden) said: May I express, from the German point of view, our great and sad surprise that you in England have to deal with this question to such an extent. In Germany it is strictly forbidden by law to admit children under six years of age to public schools, and even up to six and a half years the child will be rejected for another year if its condition of health is not fully satisfactory. In Germany the poor widows and mothers of large families are so widely supported by public authorities that they do not need to do outdoor work; they are thus enabled to devote their time to taking care of their children. I should hope that all nations may follow our principles: *keep the child in its home and family as long as possible.*

Mr. H. B. BRACKENBURY (London) said that in Hornsey children under five years of age were not admitted to school.

Miss K. PHILLIPS (London) said that many of the provided schools in London were conducted on the lines described by Mrs. Kirk.

Lady O'HAGAN (London) described homes to which the "knocker-up" came at four or five in the morning, and to which the mothers came home tired after a day's work. To the children of such homes a well-appointed infant school was a great boon.

Dr. CRONIN (New York) stated that a child under six years of age was not admitted to the New York schools, and not compelled to go until eight years old. Further, the child must show documentary evidence that it is six years old—this furnished by the municipal or church authorities. If the child was born in the city, and the birth is not recorded, information is thus had about physicians who fail to report births.

Mr. ABEL, B.A., Barrister-at-Law (Nottingham), held that Dr. Newsholme and his critics both had measure of right on their side. The ideal training for a child under the age of about five is unquestionably that of the good home, by a loving mother or intelligent nurse; but the conditions of actual city life are far from ideal, and thus, especially in large towns, the practical question pressing for solution is often, shall the young infant be left to grow up like "Topsy," in the gutters or even foulei place miscalled "home," or shall it be cared for in a *crèche* or a school. In the case of the children of our slums, and also of those whose mothers' household duties, or work away from home, prevent them giving proper home care and training, the answer to the question seems necessarily to be, "gather such infants into *crèches* or schools." The selection between these two methods depends upon the further questions of convenience and cost, which may quite possibly be answered differently in different localities. This much, however, appears certain, that inasmuch as the young infants must usually be brought to their training centre by elder brothers or sisters, such centres must be in the immediate neighbourhood of the schools for older children, unless much inconvenience and loss of school time is to be caused to both infants and elder scholars, and it will thus, under existing conditions, generally be found both cheaper and more effective to set apart a room or rooms in existing schools for "kindergarten" classes of infants under five,—taught by teachers chosen primarily for their "motherly care" qualifications,—in rooms furnished with small chairs and tables and nursery appliances, and according to a syllabus which knows nothing of formal reading, writing or arithmetic. Such building, organisation and teaching need cost no more—and will probably be found actually to cost less—than training in municipal *crèches*, for which it would appear no Government grants could be obtained under existing education code regulations. Moreover, the practicability of such real infant school kindergartens is abundantly proved by actual facts in Nottingham and other large towns, where the infant schools have for some time past been intelligently organised as real kindergartens—poor children's nurseries—conducted in rooms made as light, bright and airy as possible, furnished with special light infant chairs and tables, and all appliances for nursery games, taught entirely by adults specially trained in modern methods of mother and nurse care, and in accordance with schemes of work which rigidly exclude all formal teaching of reading, writing and arithmetic. In some of these towns the old galleries and other antiquated fittings in non-provided infant schools have been readily removed by managers in response to the offer of the Education Committee to replace such fittings by modern infant furniture; and visitors to such schools (both new and adapted) are unanimous in their testimony to the happy, healthy and intelligent little ones who throng them and who sometimes even cry when a school holiday prevents their attendance.

Dr. NEWSHOLME (Brighton), in replying, said his critics to a large extent had answered one another. They had been told that sending young children to school was desirable with a view to the discovery of disease. Again, it was said children should be sent to school to learn how to play. But they all knew how to play, and only needed the opportunity to do so. The practical question was whether the actual school, and not the ideal school described by Dr. Hogarth, was better than the home for children under five.

THE INFLUENCE OF SCHOOL ATTENDANCE UPON THE SPREAD OF NON-NOTIFIABLE INFECTIOUS DISEASES.

By W. Butler, M.B., D.P.H.,
Medical Officer of Health, Willesden.

I shall in this paper deal only with two of the non-notifiable infectious diseases, namely, measles and whooping-cough. Those who would relegate the infectious diseases of school children to a position of minor consideration among the items claiming the attention of the school doctor can scarcely have realised that during the last twenty years there have, in England and Wales, been close upon half a million deaths from measles and whooping-cough alone. When to these are added the many deaths due to the pulmonary complications of these diseases and returned in the death returns as bronchitis and pneumonia, it will be admitted that, if school attendance plays any considerable part in their spread, there is nothing in the whole range of school hygiene of such vital importance as their control.

Measles and whooping-cough together account for about half of all the deaths from all the infectious diseases.

These are two diseases for the spread of which it is to be feared school attendance is chiefly responsible.

It is true that the deaths for the most part do not occur among the scholars themselves. But attendance at school is the occasion of contracting these diseases and so introducing them into the households where the younger members of the family become infected and yield the tribute which appears in the measles and whooping-cough mortality figures.

Between 20,000 and 30,000 deaths occur in England each year from these diseases, over 90 per cent. of them among children under five years of age, and indeed more than half of them among children under two. It might be thought that this was evidence that the prevalence of these diseases was not due to school attendance. Inquiry into the actual means of spread, however, shows that it is chiefly by means of the public elementary schools that this occurs. For some years I have had reported to me from these schools in my district all cases of non-notifiable infectious diseases which were the occasion of absence or of exclusion from school of scholars known or suspected to be suffering from these conditions.

Altogether, since 1903 no fewer than 5796 cases, which upon investigation were found to be suffering either from measles or whooping-cough, have come to knowledge as a result of this system of notification from the schools.

Measles.

Out of 3329 cases of measles investigated during the last few years, 1644, or nearly 50 per cent., occurred among children under five years of age. Not all of these were school children, and of course not all school children contracted the disease at school. 2599 cases were

investigated with a view to discovering the manner in which the disease was contracted, whether at home or at school. In 1287 cases it was ascertained that the first case was a child attending the infants' department of a public elementary school, who, there was good reason to believe, had contracted the disease at school. In addition to these there were 130 children attending the infants' department who contracted the disease otherwise than by school contact, but who also were the first cases to occur in the invaded households.

In 335 cases out of the 2599 the primary case in the household did not attend school at all.

The total of these primary cases gave rise to a large number of secondary cases at their homes. Not all such cases came to knowledge, but of 751 such cases knowledge was obtained. Added to the respective primary cases from which they derived, the following results are obtained:—

1.	Primary cases (and their derivative cases) arising from school contact in infants' department ..	1859 = 71·5 per cent.
2.	Primary cases (and their derivative cases) arising from school contact in boys', girls' and mixed departments	179 = 6·8 ,,
3.	Primary cases (and their derivative cases) arising from scholars attending infants' department but contracting measles outside	97 = 3·7 ,,
4.	Primary cases (and their derivative cases) arising from scholars attending boys', girls' and mixed departments but contracting measles outside	30 = 1·1 ,,
5.	Primary cases (and their derivative cases) arising from children not attending school	434 = 16·7 ,,

Thus 78 per cent. were due directly or indirectly to the disease having been contracted at school, while in 71 per cent. the spread of the disease is directly or indirectly traceable to the infants' departments.

I have taken the number of children at each year of age attending the infants' departments of the schools in my district, and I have taken the number of cases of measles contracted in these departments at each of these ages during the last two and a half years. With these data it is easy to see what proportion of scholars at each year of age have contracted measles at school and been the first to introduce it to the home.

Fourteen per cent. of all the children under five attending the infants' departments of the public elementary schools in Willesden caught the infection of measles at school, and were the first to introduce it into non-infected homes; 8·4 per cent. between five and six, 5·5 per cent. between six and seven, and 4·5 per cent. between seven and eight similarly contracted the disease.

In the boys', girls' and mixed departments only 0·3 per cent. of the scholars between seven and ten similarly contracted the infection. It may with truth be urged that it is not merely the question of age which determines this relative susceptibility, that the elder children are *pari passu* more likely to have suffered in greater proportion already from measles and thus have acquired an immunity. It is true, as I shall show, that a previous attack of measles does confer immunity in large measure from a second attack; but I am of opinion, notwithstanding, that the differential age incidence of measles is very largely a matter of differential age susceptibility.

During the present year an attempt has been made to ascertain

the extent to which the home contacts become affected when measles is introduced into the home. It was ascertained altogether that there were 1361 home contacts of school age in all the houses known to be affected by measles; 610 of these were stated to have suffered previously from measles, leaving 751 children under fifteen years of age who were not known to be protected by a previous attack.

Of these 751 no fewer than 240, or nearly 32 per cent., contracted the disease. Of the 610 who were stated previously to have suffered from the complaint, only ten subsequently failed. Thus, on the assumption that the history of a previous attack was correct, only 1½ per cent. were unprotected by the first attack.

Whooping-cough.

Just as with measles, so with whooping-cough, though in a lesser degree, an analysis of the cases investigated shows the great and important part played by the infants' departments in the spread of the disease.

1. Primary cases (and their derivatives) arising from school contact in infants' department	843+689=	1,532=	65·3	per cent.
2. Primary cases (and their derivatives) arising from school contact in boys', girls', and mixed departments	57+55=	112=	4·7	,,
3. Primary cases (and their derivatives) arising from scholars attending infants' department but contracting whooping-cough otherwise than by school contact	137+75=	212=	8·9	,,
4. Primary cases (and their derivatives) arising from scholars attending boys', girls' and mixed departments but contracting whooping-cough, otherwise than by school contact	10+5=	15=	0·6	,,
5. Primary cases (and their derivatives) arising from children not attending school	285+221=	506=	21·2	,,

Total 2377.

The results in each particular follow closely the features of the analysis of the measles cases.

This is so also with regard to the proportion of scholars at each year of age contracting whooping-cough at school and being the first to introduce it to the home. 7·1 per cent. under 5, 5·4 per cent. between 5 and 6, 3·9 per cent. between 6 and 7, and 2·1 per cent. between 7 and 8 of all the scholars at these respective ages attending school so contracted the disease. The immunity conferred by previous attack is similar also to measles. A slightly higher proportion of those not protected by previous attack, but exposed to infection at home, contracted the disease, the proportion being 38 per cent. for whooping-cough as compared with 32 per cent. for measles, while, on the other hand, a smaller percentage of those stated previously to have suffered failed on exposure to infection.

But so large a proportion of the population under five years of age suffers from these diseases that even with a very low fatality rate there is a very high mortality figure. This is unquestionably aggravated by the comparative contempt in which the diseases are popularly held.

Immunity is conferred in a very large measure by a previous attack and by increasing years. To very young children both diseases are

dangerous to life, and unfortunately the very age at which they are most dangerous is that at which the children are most susceptible to attack. As the child matures it acquires a resistance to infection which, after seven or eight years of age, appears to amount to comparative immunity. The tender age at which children are aggregated in the infants' departments of public elementary schools enormously increases the risk of infection from these diseases. Large aggregations of children under seven are fraught with the most serious menace from zymotic infections.

Contracted primarily under these conditions, the diseases are introduced to the homes, and there the younger children become infected, and to a most serious extent succumb to them. A child incubating measles unsuspectedly and, for practical purposes, unpreventably, attends school until the appearance of the rash suggests to a vigilant teacher that she has to deal with a case of infection among the scholars. The child is sent home ; but it has already for three or four days been infecting other scholars in the department, and within a fortnight of the onset of the first case there will be a crop of cases scattered throughout the department.

If, in anticipation of this first crop of cases, the department has been closed, the cases will only be so many centres of infection in their respective homes. If it has not been closed, each of the cases of the first crop will repeat the history of the first case, and the number of cases of the second crop will be a multiple of the number of cases of the first. This progressive increase will go on until either the soil is exhausted or the school is closed. Each fresh case becomes a fresh centre for home infection, and from the home other schools become involved.

By dint of repeated closures of the department, in anticipation of the first or second or third crop of cases, it is possible to check the spread of measles in schools; but the occasions for repeating the closure occur so often in the infants' departments that, in my experience, it is impracticable. One is driven to the conclusion either that these diseases must remain uncontrolled and burn themselves out, so to speak, or the school age for admission must be considerably raised so as to reduce the accumulation of the inflammable material to such bounds as that it can be dealt with.

The minimum age at which children should be admitted to school should certainly not be less than six. If it were seven it would mean a still further reduction in the mortality from measles and whooping-cough.

I think it is clearly proven by the facts that the price paid is the high mortality from measles and whooping-cough, and I am of opinion that the only way of effectively reducing this mortality is by raising the age at which children shall be admitted to school to seven years.

The tissues at this age have acquired a degree of resistance to the commoner infections. There are fewer cases capable of spreading infection, and fewer children at this age are liable to catch the chance infections to which in lesser degree they would be then exposed.

The fewer cases contracted at school would mean fewer homes invaded, fewer children of tender age there infected, and a greatly lessened mortality from these diseases. The volume of infection remaining would be more capable of being controlled than is at present practicable. Many thousands of lives could be saved annually if what is known were acted upon in the administrative control of our public elementary schools.

CLOSURE *VERSUS* EXCLUSION IN RELATION TO SCHOOL DISEASES.

By James Robert Kaye, M.B., C.M., &c.,
Medical Officer to West Riding of Yorkshire County Council.

In introducing this subject it is not my intention to compare in any detail the utility or otherwise of these two methods for the restriction of infectious and other school diseases. My object is to draw the attention of this Congress to the somewhat anomalous and illogical position in which this matter stands under the Code of Regulations for public elementary schools. Article 57 requires the managers to comply with any order made by the sanitary authority, or two members thereof, acting on the advice of the medical officer of health. Such order may require the closure of the school for a specified period or the exclusion of any particular scholars, and it may be made with two objects—(1) to prevent the spread of "disease"; (2) to prevent any danger to health likely to arise from the condition of the school.

If the school or department be *closed* under an order as above, there is no financial loss to the managers, because the average attendance is not lowered, and, if necessary, exemption will be granted from the rule requiring 400 meetings a year. Recently also the Board of Education have declared that an infant class or division of a school, as distinguished from a separate department, may be excluded on the order of the sanitary authority, and such exclusion may be treated as a closure—*i.e.*, the registers need not be marked, and there will thus be no reduction of the average attendance. But if the order only requires the exclusion of particular scholars serious loss may result, seeing that these children must remain on the register, and be marked absent. It is quite true that a special mark is put against their names, but for financial purposes it counts as an ordinary absence.

Prior to the Code of 1904 a special grant could be obtained in respect of these excluded children, known as the "epidemic grant," paid under the provisions of the now defunct Article 101. The reasons which were understood to have brought about this abolition of the epidemic grant, were (1) that the amounts paid were usually inconsiderable; (2) that there were many difficulties in its administration; and (3) that the money could be better expended in improving the instruction given to pupil-teachers.

In these circumstances exclusion does not now take its proper place as a measure of protection, and it is on this point that I should like to take the feeling of the Congress. I submit that we are likely to be increasingly handicapped by the inability to exclude particular scholars except at a financial loss. The present Code, it will be noted (Art. 57) recognises the principle of exclusion, but leaves it to be carried out practically under a penalty, whereas total closure involves no loss.

The more one examines this position the more illogical it seems. Usually the first act of protection on the appearance of disease would

be to promptly exclude on suspicion the children who seem likely to be carriers of infection. To do this is to voluntarily lower the average attendance, while to neglect it is to run the risk of an extended prevalence, with closure of the school and no financial loss. So great is the struggle for a high average attendance that exclusion is not resorted to until too late, and then when most of the susceptible children have got the disease, and others are staying away through panic, an order is sought for closure, if only to save the financial situation. Of course, it will be said that this is very improper, and that an order should only be made with the object of preventing disease, which is equivalent to saying that the managers, not having been fined by excluding particular scholars at the commencement of the outbreak, must now be penalised by being left to conduct school with diminished attendance.

The excellent memorandum of the Local Government Board on school closure very properly puts exclusion to the front as a means of prevention, and refers to absolute closure as a much more grave step, and a measure that seldom ought to be enforced. Yet, owing to the financial discouragement of exclusion, this " grave step " is resorted to with amazing frequency. For the year 1906, the following are, in round figures, the particulars relating to a large area, from which I have been able to collect information :—

No. of Schools.	No. of Scholars Average Attendance.	No. of Closures.	Days of closure multiplied by children in attendance at the schools closed
900	180,000	250	666,000

It will be seen that the number of closures was equal to more than one-fourth of the schools. The compound figure in the last column, which I will call " child-days," means that the total closures were equivalent to 666,000 children staying away for one day, or, say, 3,000 children absent for a whole year. There can be no doubt that judicious exclusion instead of closure would have been far more effective as a preventive measure, with only a fraction of the interference with education.

I suggest that the Government should find some means of removing the present anomaly, and of encouraging the rational exclusion of infected children and contacts without involving the education authority in a loss, as at present, of about one shilling a week for every child excluded. Surely this could be arranged without grave administrative difficulties.

The withdrawal of the old grant for excluded children has a tendency to set two classes of officers into different lines of action—the teacher and the education committee desire high attendance, while the medical officer and the sanitary authority are solely concerned with health.

The question will become more urgent, and especially so when the Bill now before Parliament establishes regular medical inspection of all schools. Then the more frequent visits of medical officers to schools will most assuredly result in a greater number of temporary exclusions with lowering of the average attendance, and when we get to the stage of nurse-teachers, exclusions will become our chief safeguard, if they can be carried out without being hampered by questions of loss. Under those conditions the objection that the amount claimed is inconsiderable would be removed, for there would be excluded for treatment numerous cases of ringworm, and other contagious diseases, which to-day attend school to keep up the average attendance.

Apart from any pecuniary question, in my opinion exclusion should

be regarded as a very strong line of defence as applied to schools, and its efficiency will be promoted the more we encourage the teacher to co-operate with us. He cannot fully co-operate with us now, except by depreciating his own standards. The more use that is made of exclusion the less need will there be for closure; and if the State insists on looking at it from a financial standpoint, it ought to be clear that the less closure there is, the better value is the State getting for money expended on education.

I beg to move:—

> "That, in the opinion of this Congress, it is important to secure the prompt exclusion from school of scholars suspected to be suffering from or likely to convey infectious sickness, and that the Board of Education be urged to devise some means by which this can be done without as at present involving financial loss on the local education authority."

Dr. Philip Boobbyer (Nottingham) wished in the first place to say a few words about mild and missed cases of scarlet fever. During 1906 he had an opportunity of examining and watching the progress of a long series of cases of mild—often extremely mild—and, for the most part, a typical scarlet fever, in a large public institution. To put it briefly, he could say that, although he had seen a great deal of scarlet fever during the past twenty-five years, he would have been quite unable to diagnose many of these cases without the aid of certain typical ones which occurred from time to time in the course of the outbreak.

He wished he had taken advantage of the opportunity offered him of speaking to the discussion on infant schools, for he thought that Dr. Newsholme's admirable presentation of the case against them had not been sufficiently supported by his colleagues.

With regard to school-closure for measles. Such closure as now practised in this country, was, in his opinion, practically useless. It was altogether irrational, especially in dense urban districts, to wait until a considerable proportion of the school children were attacked before closing the school. Personally, he agreed with the Memorandum of the Local Government Board in advocating the exclusion of infected children and unprotected contacts, rather than the closure of schools. Preventive work of this character was "better done in Germany" than here. Cases and contacts were there excluded for definite periods, and the system of school notification in force was much more strictly observed than with us. The anomaly of penalising the school for the exclusion of school children and franking it when closure was adopted, now existent under the rules of the Education department, as Dr. Kaye contended, should, of course, be done away with. We should certainly get more good from exclusion consistently practised than from the present system of closure. Measles, he said, was a preventible disease, at infant ages at any rate, as evidenced by the experience of middle-class families, and the first thing to be done, with a view to its prevention at these early ages among the poor, was to do away, as far as possible, with the infant school, and secure a more rational and consistent system of school notification and exclusion of patients and contacts than at present obtained in this country.

Dr. Dennis Vinrace (London) was opposed to the inclusion of measles and whooping-cough in the list of notifiable diseases on the ground that such was an unnecessary expense to the ratepayer, and that other means of checking these diseases were available and could be made satisfactory. Though he agreed that children, to the age of seven, were very prone to measles and whooping-cough, he could scarcely concede that the liability to these particular diseases was any sufficient reason for keeping children at home till that age.

> "That, in the opinion of this Congress, it is important to secure the prompt exclusion from school of scholars suspected to be suffering from

or likely to convey infectious sickness; and that the Board of Education be urged to devise some means by which this can be done without, as at present, involving financial loss on the local education authority."

Proposed by Dr. KAYE (West Riding), seconded by Dr. EDMUND SMITH, and carried with one dissentient.

EXCLUSION OF CHILDREN FROM SCHOOL ON ACCOUNT OF INFECTIOUS DISEASE.

By JAMES BEATTY, M.D.,
Medical Officer of Health, Northampton.

As a great amount of dislocation of school work occurs from the occurrence of epidemic infectious disease among school children, it seems desirable to consider to what extent this can safely be obviated. In order to come to definite conclusions on the subject, I found it necessary to discover, if possible, to what extent school children are liable to be attacked by these various diseases. If "contacts" can be allowed to attend school without fear of the epidemic spreading, then not merely will these contacts themselves benefit educationally, but a school which would otherwise be so diminished in numbers that it would not be worth while to keep it open might continue its work with little or no disturbance.

Just as there can be no question that an actual case of disease should be excluded, so also, in the case of the more dangerous infectious diseases which are by law notifiable to the medical officer of health, there is, in my opinion, no doubt that "contacts" should be excluded from the school. Even in the case of that one of them which occurs most frequently, scarlet fever, the number of children who are unprotected by a previous attack of the disease is so large in proportion to those protected that it would be practically certain that the disease would spread through the agency of "contacts." That the proportion of the unprotected is much larger than that of the protected in Northampton I have proved by direct investigation for one school, and it also follows from a comparison of the number of children in the schools with the number of cases of scarlet fever notified during the last dozen years.

While this is true of the notifiable diseases, there are a number of diseases which are common among children, and which stand on a different footing. These are measles, whooping-cough, mumps, and chicken-pox. There were no figures at my disposal which showed to what extent, if any, the children of Northampton were protected from these by having already suffered from an attack. It seemed, therefore, desirable to have a census taken of the occurrence of these diseases among children attending the elementary schools.

Bundles of forms were given to each head teacher with a request that every child in the school should be given a copy; the child was then to take this home, to have it filled up by his parents, and return the filled-up

form next day to his teacher. Over the whole town there were only three direct refusals to fill up the form.

How completely the ground was covered is proved by the following figures. There were, at the time the investigation was made (omitting the Wellington Place Special School), 15,225 scholars on the rolls, and from these there were obtained 14,484 filled-up forms, or, in other words, 95·1 per cent of all the scholars on the rolls made the return. The returns were then analysed at the Public Health office, and the following table shows the result :—

	Total making Returns.	Number who were reported to have had—			
		Measles.	Whooping-cough.	Mumps.	Chicken Pox.
Boys	3,865	3,395	1,956	1,253	1,112
Girls	3,873	3,472	2,179	1,406	1,202
Mixed	2,112	1,883	1,093	811	605
Infants	4,634	3,741	2,109	1,344	1,117
Totals	14,484	12,491	7,337	4,814	4,036

Expressed in percentages, the table is as follows :—

	Percentage who were reported to have had—			
	Measles.	Whooping-cough.	Mumps.	Chicken Pox.
Boys	87·8	50·6	32·4	28·8
Girls	89·6	56·3	36·3	31·0
Mixed	89·2	51·5	38·4	28·6
Infants	80·7	45·5	29·0	24·1
All	86·2	50·7	33·2	27·9

Summarising, the results show that in the departments above the infants' departments nine out of ten children have had measles, one-half have had whooping-cough, one-third have had mumps, and a little over a quarter have had chicken-pox. Probably the figure for mumps would not be so high had not an epidemic of this disease occurred last winter.

Applying these results to the questions raised, and discussing the diseases in reverse order, it cannot be said that the majority of the school children are protected against mumps or chicken-pox ; indeed, the facts are quite the reverse of this ; the question, therefore, as to exclusion of "contacts" must be settled on other grounds. These two diseases differ from most of the epidemic diseases in the fact that they are rarely fatal ; it would seem, therefore, that it is unnecessary to apply to these two diseases the drastic measures which are used to cope with such grave diseases as diphtheria and scarlet fever. It is not worth while to dislocate the school work by excluding the "contacts" of cases of these diseases. The case is quite different as regards whooping-cough. From this disease

only one-half the children are protected by a previous attack, and, in addition, owing to its lung complications, the disease is a serious one and liable to be fatal. It is therefore desirable in the case of this disease to exclude, not only the cases, but also the "contacts," from all the departments of all the schools.

The last disease is measles. Could this disease be eliminated from our midst it is safe to say that the closure of a school would be a rare occurrence. The figures show, however, that only about 10 per cent. of the population is immune naturally to the disease. It is often fatal; and were the figures indicating protection derived from a previous attack, the same as in whooping-cough, there could be no question that it should be treated in the same way by exclusion of "contacts." But the figures are completely different. The history of every epidemic is that the chief incidence of the disease is in the infant schools, and that the upper schools are only incidentally affected, and that chiefly by the exclusion of "contacts" who themselves are not ill. But the figures appear to show that even infant schools are largely protected, for over 80 per cent. of the infants making returns have apparently had the disease. If, therefore, it should be considered unnecessary to exclude contacts from the well-protected upper schools, it would also appear unnecessary to exclude them from the, on the whole, well-protected infant schools. But this conclusion does not take into account the fact that at the date of this paper in the infant schools the numbers protected had reached nearly their highest point, as the town had just passed through an epidemic of measles. From inquiries kindly made by the head teachers of the infant schools along lines which I suggested, it appears that out of 4324 children reported on, 1062 were attacked with measles during 1907, or 24·7 per cent.—nearly one-fourth. Calculating the proportionate figure for the 4634 children of the table, it appears that 1138 children were affected this year. Second attacks in measles are very uncommon and may, for the purpose of this calculation, be neglected. Assuming, therefore, that these were all first attacks, then, at the commencement of this year, only 56·2 per cent., instead of 80·7 per cent., of the children in the infant schools were protected.

It follows from these facts that measles, if introduced into the upper schools, will not spread to any extent of importance.

There is one objection still against the idea of allowing measles "contacts" to attend school, viz., that infection may be brought home by children sitting next to these "contacts," and the disease spread to those children who are too young to attend school, and among whom most of the fatalities occur. Against this, however, I may set the experience of the recent epidemic. Every death has been investigated; and it is surprising to find in how many cases young infants died who had no brothers or sisters attending school. In these cases the infection was generally traced to playing with others in the streets who afterwards developed measles. If these young infants are to be protected till they are of an age when the probability of a fatal termination is remote, then our proper course is to isolate them; in other words, there is room for a scheme for the isolation of *healthy* young infants as distinguished from isolation of the sick; and this, the isolation of the healthy below three to four years of age seems our only hope of preventing fatalities so far as our present knowledge of the disease extends.

My recommendations, then, as regards measles are :—

(1) All affected children are to be excluded as a matter of course ;
(2) The "contacts" of the affected are to be excluded from the infants' schools ; but
(3) These "contacts" need not be excluded from the boys, girls, or mixed departments, provided they are protected by having had already an attack of the disease ;
(4) If these "contacts" are not protected in this way it is safer to exclude them, as they may be developing an attack.

THE CONTROL OF MEASLES, AND THE RESULTS OF AN ENQUIRY INTO THE BENEFITS OF EARLY SCHOOL CLOSURE.

By Sidney Davies, M.A., M.D., Oxon.,
Medical Officer of Health, Woolwich.

In order effectually to control infectious disease, the peculiarities of each special infection must be considered, and the steps taken which are suitable in each case. Measles spreads chiefly in the catarrhal period preceding the rash before it has been recognised. Any steps that deal with only recognised cases must necessarily be futile in arresting an outbreak. So far no symptoms have been found which enable an early diagnosis to be made, and the hopes that Koplik's spots would provide such a symptom have not been realised.

The fact that measles outbreaks have, in recent years, been largely associated with school attendance, led medical officers of health to attempt to arrest infection by closing the school or the class where the outbreak had begun. Dr. Kerr (Medical Officer (Education), L.C.C.), has pointed out that such closure appears to arrest the disease, but that in fact it has none or little effect. Dr. Thomas shows in his paper, by graphic method, how this is—namely, that as the disease spreads in a high geometrical progression in an unprotected class, the second crop occurring some three weeks after the first case, carries down the bulk of the unprotected children, and consequently in the natural course of things and quite independently of the closure, few, if any, cases would occur on re-opening the class, if it had been closed for two or more weeks after the occurrence of the first crop.

The only way, then, to prevent measles spreading when a case has once been introduced into a school is to close the class before the first crop comes down—*i.e.*, to close on the occurrence of the first case, and so prevent the attendance of the first crop, while suffering from pre-eruptive symptoms of measles. It was consequently arranged between Dr. Kerr and the writer, with the approval of the L.C.C. and the Woolwich Borough Council, to divide this borough into two nearly equal districts, and in one of these to close any class in the infants' department of an elementary school immediately a case of measles was notified, and, in the other, only to adopt the ordinary measures of excluding children from infected homes. At the same time an investigation by a card-system as described by Dr. Thomas, was begun into every notified case.

The early-closure system began in January, 1903, and it was decided

to close in the following Wards of the East district of the borough—Glyndon, Central, St. Margaret's, St. Nicholas, and Eltham—and not to close in the remaining wards in the Western half.

On receiving a notification that a child was absent from school, on account of measles, the sanitary inspector straightway visits the house, and enquires as to the grounds for thinking it is a case of measles, and obtains particulars. If the information as to the diagnosis is not conclusive and no medical man is in attendance, the M.O.H. calls. When satisfied that the case is one of measles a letter is written to the school medical officer asking him to close the class for a certain period, from six to fifteen working-days (ten to twenty-one days' interval) according to circumstances. The average total period of closure in 1904 was under thirteen days, including only about nine working-days. When it was known that a large proportion of the children in a class had had measles, only those children have been excluded who were stated not to have already suffered from the disease.

Results of Investigation.—The appended tables summarise the results of investigation. They compare notifications and deaths in the West or non-closure district, with those in the East or closure district, both for the period of January, 1903, to December, 1906, inclusive, and for the two preceding years, 1901–2, when early closure was not enforced at all.

Table I. shows the age incidence of notifications in the whole Borough, and Table II. the age incidence of deaths in each district and during each period. Table III. shows the schools with the numbers on the roll, and the cases notified during 1903–6. Table IV. shows the same items for 1901–2. The notifications in Table III. only include children attending school; the notifications in Table I. include in addition children not attending school who have been notified by school-teachers, owing to brothers or sisters being excluded on their account, and also a few cases notified by parents or others. Table V. shows the notification and death-rates for each district in each period of time—*i.e.*, before and after closure was commenced.

The following facts appear from the investigation :—

1. The largest number of cases notified was between the ages of five and six years, and the next largest number between four and five.
2. Over three-fourths of the cases notified were between three and seven years of age.
3. Closure has some slight effect on the age incidence. It diminished the incidence at ages under three. (*See also* Dr. Thomas's paper.)
4. Nearly one-fourth the deaths were in children under one year of age, and only one in ten were in children over five.
5. During the two years (1901–2) preceding closure, the notification rate was much higher in the east or closure district than in the west or non-closure district, as 21·3 to 15·4.
6. There was a great increase of notifications during the second period, 1903–6. In the west or non-closure district the notification rate increased from 15·4 to 26·0, and in the east or closure district from 21·3 to 30·8.
7. During 1903–6 there was a higher rate of notifications in the closure district than in the non-closure, 30·8 compared with 26·0.
8. Comparing the two periods of time before and after closure commenced, in the latter period there was an increase in the rate of

notifications of 69 per cent. in the non-closure district, but the increase in the closure district was only 45 per cent. Thus while an increase of notifications was general throughout the borough, closure had the effect of diminishing the increase in the east district. This may partly be ascribed to teachers not hearing of cases of measles among excluded children, but as the average closure was only for thirteen days, probably very few cases had been missed on this account.

The death-rates in the two districts during 1901–2 were nearly equal. There has been a marked reduction in the death-rate during 1903–5, but this reduction has been somewhat less in the closure district than in the non-closure. The number of deaths, however, in each district is too small to draw from them reliable comparisons.

There has been a striking reduction in the death-rate from measles in the borough during the last five years, both as compared with the preceding years and with London during the same period. This is shown by the following table :—

	Death-rates from Measles per 1000 population.	
	Woolwich Borough.	London.
1891–5	0·51	0·59
1896–1900	0·67	0·57
1901	0·18	0·43
1902	0·33	0·51
1903	0·20	0·40
1904	0·22	0·49
1905	0·10	0·36
1906	0·24	0·40

(The figures previous to 1901 are exclusive of the part of the borough known as Eltham, but the Eltham figures could not appreciably diminish the rate, though they might possibly increase it, as the Eltham population was then less than one-fifteenth that of Woolwich and Plumstead.)

This remarkable reduction of deaths certainly has little relation to school closure, having commenced before early closure was begun. The death-rate was naturally low in 1901, which succeeded a year of high death-rate. In January, 1902, was commenced the practice of taking a card of instructions as to the hygienic treatment of measles to every house when a case was notified. The usual biennial rise in the measles death-rate in 1902 was slight, and the subsequent years have shown a continued low mortality. It seems reasonable to conclude that the reduced mortality is a result of more hygienic treatment of children suffering from measles, resulting from the instructions given by card distribution.

Why Closure has not been more successful.—Although closure of classes appears to have had the effect of greatly limiting the increase of measles in the eastern district compared with the western, it must be admitted that the total result of closure has been much less than might have been hoped for. The reasons for this are not far to seek. There is no satisfactory system by which a teacher becomes aware of the cause of the absence of a pupil. If no note is received from a parent, she is not allowed to send a child to the house, but is usually dependent on a hearsay report from any child who lives near. The result is that, even when the cause of illness in a child is known at home, it is frequently not known at the school till the expiration of the ten days' incubation period, during which

closure should take effect to be of value. The obtaining of early information depends to a large extent on the interest and diligence of the head-teacher in excluding cases of infectious disease. Whereas some teachers, even without closure, have been most successful in checking the spread of infection, from others information is seldom obtained until several cases have commenced.

Children being rewarded only for attendance and teachers' work being mainly measured by their pupils' attendances, it is no wonder if there is little zeal to find out cases of infection which may lead to a serious amount of school absence. Further, about half the cases of measles that occur in Woolwich do not have medical attendance, and consequently many parents are ignorant of the existence of the infection, and probably many are willingly ignorant. Thus the first case is often missed, and still more often not notified until the first crop has come down and the mischief done.

What is required to make closure more successful is improved means of gaining early information of the occurrence of cases of infection. School-teachers have not the time to do this satisfactorily. Probably it could best be done by making a notification to the M.O.H. of all infectious disease compulsory on the parents, and throwing upon them the onus of becoming aware that the disease was infective. This would no doubt involve the provision of medical attendance free of charge for diagnosis purposes. But a useful, if less complete, means of gaining the necessary information would be the provision of trained nurses to visit immediately any children absent from school, and report any suspicious cases which could then be visited by the school or borough medical officer. Such a staff would be beneficial in many ways as health visitors.

Difference of Incidence on the East and West Districts.—The appended tables—and Dr. Thomas's tables—show a decidedly heavier incidence of measles on the east district than on the west. Probably this is only apparent. The west district is, on the whole, poorer than the east, and less educated, and this was especially the case in 1901–2. Since then health leaflets have been distributed equally all over the borough. It has been similarly found that scarlet fever and diphtheria affect schools in the east district more than those in the west. When, however, the total notifications and deaths of these latter diseases in the two districts are compared, it is found that there is little difference in the notifications and that the deaths are proportionally more in the west or poorer districts. The explanation is no doubt as follows :—Poor families have a minimum of medical attendance, and for this and other reasons, infection spreads more easily ; consequently, children contract infectious diseases at an earlier age (though the disease is often not recognised), and there are more deaths ; hence children commencing to attend school in the poor district are better protected though an enquiry would not show this, because many had the infection without its being diagnosed. What has been found to hold with scarlet fever and diphtheria is probably equally true in the case of measles. Why, then, was the measles death-rate higher in the east or less poor district ? Because deaths of young children from measles are frequently attributed to the intercurrent bronchitis, and especially among the poor the rash is liable to be overlooked—if indeed it occurs—the doctor probably not being called in till the rash has gone.

TABLE I.

AGES OF CASES NOTIFIED, 1901–1906.

Ages.	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10 & over
	58	136	159	484	943	1118	546	209	71	30	70

TABLE II.

DEATHS, 1901–1906.

Non-Closure District.									Closure District.								
Ages.	1901	1902	Total.	1903	1904	1905	1906	Total.	Ages.	1901	1902	Total.	1903	1904	1905	1906	Total.
0–1	2	3	5	1	5	—	—	6	0–1	1	10	11	2	4	4	7	17
1–5	11	11	22	8	8	7	9	32	1–5	5	14	19	12	5	3	12	32
Over 5	1	1	2	1	1	—	1	3	Over 5	1	1	2	2	4	1	2	9
	14	15	29	10	14	7	10	41		7	25	32	16	13	8	21	58

TABLE III.

SCHOOLS, NUMBERS ON ROLL, AND CASES NOTIFIED IN EACH DISTRICT, 1903–1906.

Non-Closure Schools.	Average Number on Roll, 1903-1906.	Cases Notified, 1903-1906.	Closure Schools.	Average Number on Roll, 1903-1906.	Cases Notified, 1903-1906.
Union Street	607	81	Slade	942	164
St. Mary's	703	26	Earl Street	997	161
Bloomfield Road	1627	276	Vicarage Road	1007	154
Elizabeth Street	817	102	Church Manorway	549	19
Plum Lane	790	176	Bostall Lane	928	85
Eglinton Road	1183	57	Conway Road	1337	145
Burrage Grove	932	134	Ancona Road	1181	141
All Saints'	418	30	Piedmont Road	47	..
Mulgrave Place	861	69	Ancona Road (Mentally Defective)	..	..
Wood Street	1044	54	Timbercroft Road	451	139
St. Michael's	596	82	Central	549	63
St. Peter's	629	2	Purrett Road	1036	97
Fox Hill	224	2	High Street	1253	119
Powis Street (Blind and Deaf)	30	..	Wickham Lane	522	35
Union Street (Mentally Defective)	..	..	Plumstead Road	810	86
Powis Street (Mentally Defective)	36	..	Deansfield Road	211	31
			Gordon	644	106
			Pope Street	618	60
			Roper Street	361	88
			Christchurch	108	..
			St. Patrick's	179	1
	10,497	1091		13,730	1694

TABLE IV.

SCHOOLS, NUMBER ON ROLL, AND CASES NOTIFIED IN EACH DISTRICT, 1901 AND 1902.

Schools.	On Roll.	Cases.		Total	Schools.	On Roll.	Cases.		Total
		1901	1902				1901	1902	
Union Street	557	7	1	8	Slade	1182	43	26	69
St. Mary's	752	1	20	21	Earl Street	1045	3	59	62
Bloomfield Road	1805	29	28	57	Vicarage Road	1036	23	41	64
Elizabeth Street	763	3	33	36	Conway Road	1428	2	16	18
Burrage Grove	1005	13	16	29	Ancona Road	1221	1	69	70
All Saints'	452	1	..	1	Timbercroft Road	433	..	..	.
Plum Lane	396	1	36	37	Central	585	2	33	35
Eglinton Road	1290	10	3	13	Purrett Road	1380	9	79	88
Mulgrave Place	796	..	37	37	High Street	1269	45	8	53
Wood Street	1152	25	10	35	Wickham Lane	485	..	11	11
St. Michael's	638	43	..	43	Plumstead Road	937	8	45	53
St. Peter's.	638	1	..	1	Gordon	389	..	2	2
Fox Hill	89	..	..	..	Pope Street	595	..	10	10
Powis Street	322	13	..	13	Christchurch.	110	..	7	7
Union Street (Ment. Defect.)	28	..	..	..	Roper Street.	400	..	..	..
					St. Patrick's.	182	..	..	..
					Ancona Road (Ment. Defect.)	33	..	..	..
	10,683	147	184	331		12,710	136	406	542

TABLE V.

SUMMARY OF REPORT.

Schools in West District (Non-closure).

Cases notified, 1901–2 ... ... 331 Rate ... 15·4
,, 1903–6 ... ... 1091 ,, ... 26·0

Schools in East District (Closure).

Cases notified, 1901–2 ... ... 542 Rate ... 21·3
,, 1903–6 ... ... 1694 ,, ... 30·8

Notification rates are calculated per 1000 on roll per year.

West District.

Deaths, 1901–2 ... ... 29 Rate ... 8·5
,, 1903–6 ... ... 41 ,, ... 6·07

East District.

Deaths, 1901–2 ... ... 32 Rate ... 8·3
,, 1903–6 ... ... 58 ,, ... 7·8

Death rates calculated per 1000 average annual births.

CONCLUSIONS.

The following conclusions have been jointly arrived at by the two writers :—

1. Probably every human individual is susceptible to measles until protected by a previous attack.
2. Exposure of unprotected individuals to infection is almost certainly followed by an attack.
3. It is impossible to prevent the frequent introduction of measles into schools.

4. Once introduced into a class measles will spread with a rapidity proportional to the number of non-protected children attending, if the class continues to assemble.
5. The first crop will occur in about twelve days after the first case, and in twelve days more the majority of unprotected children will have been attacked.
6. Closure, to be effectual, must occur within ten days of the first attendance of the initial case in an infectious state.
7. With the means at present available early notification of the first case is not usually to be secured.
8. When closure is effectual in keeping measles out of a school for a time, the rate of spread when again introduced will increase proportionally, and it will only be possible to postpone an outbreak for a short time.
9. To the extent to which this can be done, and the age incidence raised, measles mortality will be lessened.
10. School closure, as generally applied, is futile as a preventive measure.
11. We consider that with the present available means early school closure cannot be applied with sufficient success to make it desirable, in view of the loss of school attendance, and annoyance to parents and teachers caused. N.B.—It should be stated that Professor Dr. Eberstaller (Gratz) was rather more successful in the application of this measure. (*See* his paper, International Magazine of School Hygiene, vol. iii., part 1.)
12. Though preventive measures have largely failed to reduce the prevalence of measles, education of parents by leaflets, and instruction given by health-visitors and others, has the effect of greatly reducing the mortality of this disease.
13. The great majority of children only have one attack of measles, and the infection is unlikely to be carried by a third person.
14. When two-thirds of a class are protected by a previous attack, measles is not likely to spread, even if introduced, and measles contacts in the class who have had measles themselves need not be excluded from school.
15. In view of the above conclusions, which have for the most part been arrived at independently by other observers, it is desirable that the medical officers and authorities of schools should revise their regulations as to measles, with a view to avoiding unnecessary interference with education.

MEASLES.

By C. J. Thomas,

Assistant Medical Officer (Educ.), L.C.C.

Dr. Kerr submitted a memorandum to the School Board for London in 1902, in which he stated that one-third of the children in an infants' class have already suffered from measles, and also that it is doubtful whether school closure has any effect unless classes be closed on the occurrence of the first case, and even then it is doubtful whether this would be useful if the children liable to infection accumulate.

To gain further knowledge, in the autumn of 1902 an enquiry was commenced in Woolwich with the view of ascertaining the amount of control which it is possible to exercise over the spread of measles in the infant population by school closure and otherwise. The enquiry was pursued both at school and at home. The school records were made by the officers of the School Board and later by the L.C.C., and the home enquiries by the staff of the Health Department of the Borough of Woolwich, the local sanitary authority. The teachers of infants were required to fill in the necessary particulars for each child then in their departments upon the cards handed round, and for each new child admitted a card has also been filled in. These cards have been kept in school, but upon the knowledge or suspicion that any child has suffered from measles his card has been forwarded as a notification to Dr. Davies, and the results of enquiries made by him or his officers at the home have been entered upon the reverse side.

Thus a measles history of each child in the infants' departments in Woolwich has been available, and at the present date a generation of children has been followed through the infants' departments.

At the end of the first year the cards of fourteen infants' schools with a roll of 5,512 children were analysed and the percentage of those who had had measles was :—

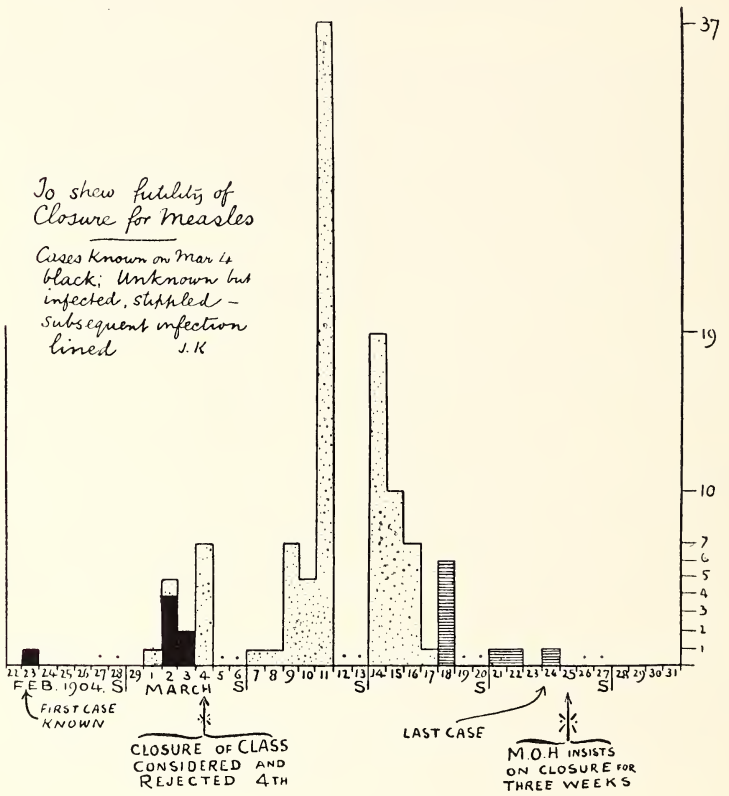
Age last birthday	3	4	5	6	7
Percentage	54	70	75	84	83

This showed that there was a steady increase in the numbers of children who had already had measles from the age of three to that of six ; 54 per cent. had already had measles at the age of three to four, while at the age of six 84 per cent. had suffered. In eight schools a distinction was made as to whether each child in the infants' department had had the disease before or after admission ; of 3,328 children, 1,643 (49 per cent.) had suffered before admission.

A point of practical importance is the possibility of preparing charts showing at any time the amount of " combustible material " throughout the school (provided that it is granted that an attack of measles confers a considerable degree of protection which the subsequent matter will prove).

For the purpose of investigating the effect of school closure in the schools in the eastern half of the borough (Plumstead) closure was rigorously enforced whenever possible, even upon the occurrence of a single case; in the western half, or Woolwich proper, the schools were never closed, but reliance was placed upon other measures.

DIAGRAM I.


To show fluctuity of Closure for Measles
Cases known on Mar 4 black; Unknown but infected, stippled – Subsequent infection lined J.K
37
19
10
7
6
5
4
3
2
1
22 23 24 25 26 27 28 29 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
FEB. 1904. S
MARCH
S
S
S
S
FIRST CASE KNOWN
CLOSURE OF CLASS CONSIDERED AND REJECTED 4TH
LAST CASE
M.O.H INSISTS ON CLOSURE FOR THREE WEEKS

During 1903, out of twenty-two schools included in the enquiry an outbreak of measles occurred in fourteen, of which six were in the non-closing division and eight in the closing. The epidemic commenced in the most westerly school in November, 1902, and spread eastwards in a slow wave affecting each school in turn until it finally reached Conway Road in Plumstead during July, 1903; the disease thus took eight months to travel a linear distance of two miles.

The particulars of the number of cases and amount of loss of school attendance during this outbreak is given in the following tables.

TABLE I.

WESTERN DIVISION (NON-CLOSING).

School.	Number of Scholars.	Cases of Measles.	Loss of Attendance.
Maryon Park	309	20	1,175
Wood Street	480	68	4,681
Mulgrave Place	463	44	2,428
Union Street	320	20	1,501
Burrage Grove	395	35	1,960
Plum Lane	135	28	1,818
	2,102	215	13,563

EASTERN DIVISION (CLOSING).

School.	Number of Scholars.	Cases of Measles.	Loss of Attendance.	
			Exclusions.	Due to Class Closure.
"Slade"	390	40	1,479	7,109
Earl Street	500	24	1,261	1,104
Ancona Road	457	23	534	4,250
Timbercroft Road	120	11	605	1,598
Grangehill Road	120	48	2,534	1,220
Plumstead Road	393	26	1,482	5,144
High Street	487	17	1,603	2,664
Conway Road	470	6	86	594
	2,937	195	9,584	16,703

These tables show that class closure is more costly with regard to interference with school work than the mere exclusion of individuals. In the non-closing division an average of sixty-three attendances per case was lost, while in the closing division 135 attendances per case—more than double as much; to justify this it is necessary to show that closure is more efficacious in controlling measles than other methods. This we have not in this enquiry been able to demonstrate.

When the course of an outbreak of measles in an infants' department is examined it is seen that the second crop exhausts practically all the susceptible cases. Thus in February, 1903, an outbreak took place in Bloomfield Road (see Chart VIII.). The seed was sown by one case which appeared in Room D on January 27th; before the first crop fell several children were transferred to Room E; the first crop, therefore came down in these two rooms from February 5th to 10th, numbering eight cases; the second crop occurred in these two rooms, and also a third room (C) between February 16th and 24th, numbering thirty-two cases. This practically exhausted the material, the third crop consisting of but six cases. It is clear that closure could only have done good if carried out before the falling of the first crop.

Similarly, at Elizabeth Street in January, 1903 (Diagram IX.), the seed was evidently sown on two occasions (probably parties) in the Christmas holidays. The first crop came down from January 12th to 15th (seven cases) and January 18th to 22nd (nine cases); the second crop from January 25th to 29th (thirty-two cases), and February 1st

to 5th (thirteen cases). This exhausted all the material. Late closure for measles, such as is usually carried out, therefore appears to be useless as a protective measure, the cessation of cases being due to natural causes and not to the closure. In Diagram I. is shown an outbreak of measles at Broomsleigh Street, in North London. Knowledge of the outbreak occurred on March 4th, but closure was rejected because it was considered that all the children who were likely to suffer had been already infected. This proved to be the case, but the large second crop alarmed the local authorities, whose medical officer on March 24th wrote saying the school must be closed. It is rarely that we can have sufficiently early notification of the first case in a susceptible class to be able to carry out prompt closure. In the eastern half of the borough, however, closure has been resorted to upon the earliest information obtainable, and in some instances an outbreak has been postponed in a susceptible class for a few months by this means—more we cannot claim to have accomplished. Thus in the babies' class at Vicarage Road an opportune closure from March 16th to April 11th, 1904, saved twenty-two children from having measles (see Diagram V.), but these children all suffered from measles during the succeeding year at a time when measles was not unduly prevalent in other portions of Woolwich; similarly, thirteen unprotected children in one class were excluded from Earl Street school just before the summer holiday, 1906; they escaped measles then, but every one who remained in the school suffered from measles in the general outbreak which took place immediately after the summer holiday, 1906.

TABLE II.

Schools.	No. of Children with known Histories.	No. reported to have had Measles previously.	No. reported not to have had Measles.	Percentage of Unprotected.	Cases of Measles during year.	No. said to be Second Attacks.	Percentage of Unprotected Children Attacked.	Percentage of Children left without being Attacked	Date of Opening.
Closing Schools—				Per cent.			Per cent.	Per cent.	
Purrett Road . .	390	267	123	31	88	8	65	8·7	1888
The "Slade" . .	316	209	107	32	57	4	50	15·5	1885
Ancona Road . .	559	282	177	32	75	2	41	18	1893
Timbercroft Road .	147	82	65	37	57	4	81·5	5·5	Temporary.
Conway Road . .	589	437	152	26	23	3	13·2	21	1897
Earl Street . . .	463	329	134	29	51	7	32·7	18	1875
Vicarage Road . .	403	241	162	40	57	3	33·3	25	1881
Deansfield Road . .	77	48	29	37·6	20	—	90	4	Temporary.
Non-Closing Schools—									
Eglinton Road . .	463	322	141	30	56	4	36·5	18	1886
Maryon Park . . .	301	140	161	53	112	11	62·6	16	1896
Plum Lane . . .	206	137	69	33	24	1	33·3	21	1904
Union Street . . .	200	113	87	43	37	—	42·5	25	1884
Mulgrave Place . .	249	160	89	36	20	—	22·5	27	1894

During 1904–5 there was general prevalence of measles in Woolwich, the distribution of cases in thirteen schools being as given in the following tables.

The reliability of the histories of measles obtained is an important consideration. The similarity of the results in various schools and the regular increase of the proportion of children who have had measles as

we pass from the age of three to that of eight is strong presumptive evidence of the reliability of the histories. If it is *assumed* that the protection one attack of measles gives be absolute, it is seen from the above table that out of 627 cases of measles only forty-eight had been reported to have had measles before, or 7·6 per cent.—which, under this assumption, would be the measure of error. Assuming that all the histories were true, the second attacks work out at 7·6 per cent.; it is probable that the number of second attacks is less than this, and subsequent experience has confirmed the view. It may be taken that reliable histories can be obtained in at least 95 per cent. of children, and that an attack of measles confers such a degree of protection that for school purposes it may be taken as complete.

An examination of Table II. shows that measles may be expected to occur in a department when more than one-third of the children are unprotected, and ceases to spread under normal conditions with or without school closure when the proportion of unprotected children falls to 18 per cent. *Cæteris paribus*, the lighter, the airier, and the less crowded a school is the less the spread of measles; thus in the table it is seen that at Timbercroft Road and Deansfield Road (see also Diagrams VI. and VII.), in spite of closure at the earliest knowledge of a single case of measles, 81·5 per cent. and 90 per cent. respectively of the children were attacked, and only 5·5 per cent. and 4 per cent. of total children left without measles. These schools were temporary buildings incapable of ventilation, of proper heating or hygienic class arrangement. If we differ with regard to the wisdom of having children under five years of age in well-lighted airy rooms, we will all unite in agreeing that children of the tender ages should not be massed under such insanitary conditions.

In the Annual Report of the Medical Officer to the County Council for 1904–5 some general conclusions were drawn which have not been materially altered by subsequent enquiries.

1. Measles at present only spreads in classes under five years of age, except in certain better-class districts; 75 per cent. of children above five in infants' departments are protected.

2. Measles tends to spread when a class accumulates unprotected members to the extent of between 30 to 40 per cent., and when spread has begun it continues until the proportion is reduced to between 15 and 20 per cent. unprotected.

3. If children under five were excluded from school spread of measles in connection with schools would generally cease for the present, but if this were successful in postponing attacks, school spread at an older age would occur in a few years' time.

4. If anything is to be done efficiently with regard to school closure of measles accurate knowledge is required; the measles history should be elicited for each child on admission to school. Diagrams X. and XI. show how charts may be prepared showing the amount of susceptible material in a school at any time. This should be done universally (and the proposed legislation with regard to medical inspection would render this quite practicable). It should be compulsory for a parent of a school child to notify to the school whenever the child sickens from infectious disease, whether major or minor.

5. To effect any useful purpose, school closure must take place before

the first crop falls. The practice of closure only when attendance falls to a certain limit has no effect in arresting the spread of the disease, and is a question affecting the adjustment of municipal and central taxation rather than of health.

6. Other means of arresting spread of measles than school closure are of great importance; to name two—sanitary buildings and training of teachers; these two factors probably have the greatest effect of all in determining the extent of spread of an outbreak. Ready and discriminating action upon the part of teachers is undoubtedly a great aid in limiting the spread of the complaint at the outset. Unfortunately this action on the part of teachers is not found so often as it would otherwise be were it not for the fetich of attendance which at the present time rules in our elementary schools to the exclusion of all other considerations. This is not the fault of the teachers, but of the authorities and the Board of Education in particular.

7. Deaths occur from ignorance upon the part of parents. Circulars should be sent out whenever measles has appeared in a class (*i.e.*, on the incidence of the first case), begging mothers to notice colds, and upon the slightest suspicion of symptoms to keep the child at home for a day or two. In this way it is probable that postponement of measles would be obtained to a greater extent.

8. Measles never spreads in boys' and girls' departments. This is evidently because the proportion of children who have had measles is very great. Since the commencement of this enquiry, the exclusion of children attending senior departments from infected homes who have had measles themselves has been discontinued in Brighton and Croydon, among other places, and from 1905 this has also been the case in London.

Cards in the following form (see Appendix) have been issued to teachers with instructions that they shall be issued to parents upon the appearance of measles in a class. It is only fair to parents who are compelled to send their children to elementary schools that they should be warned of any danger which threatens the children which is within the knowledge of the education officials.

During 1905–6 measles was not very prevalent in Woolwich, but in 1906–7 again an outbreak took place, which this time commenced in the most easterly district (Bostall Lane) and spread westwards.

The results in sixteen schools are shown in the following table.

TABLE III.

NON-CLOSING, 1906–7.

—	No. of Children.	Had Measles Before.	Not had Measles Before.	Percentage Unprotected.	No. of Cases this Outbreak.	After Outbreak.		Percentage left Unprotected.
						Measles.	Not.	
				Per cent.				Per cent.
Eglinton Road.	453	257	196	43	106	348	105	23
Wood Street .	367	187	180	49	84	266	101	27
Plum Lane. .	257	135	122	47·5	94	223	34	13
Mulgrave Place	215	111	104	48	45	153	62	29
Bloomfield Road	630	396	234	37	121	512	118	18·6
Union Street .	259	143	116	45	41	184	75	28
Maryon Park .	419	309	110	26	64	365	54	13
Total. . .	2,600	—	1,062	41	555	—	539	20·5

CLOSING, 1906–7.

	No. of Children.	Had Measles Before.	Not had Measles Before.	Percentage Unprotected.	No. of Cases this Outbreak.	After Outbreak.		Percentage left Unprotected.
						Measles.	Not.	
				Per cent.				Per cent.
Earl Street . .	359	266	93	26	55	315	44	12
Vicarage Road .	328	209	119	36	57	260	68	20 7
Conway Road .	446	278	168	37·6	91	361	85	19
Ancona Road .	415	241	174	42	103	342	73	17·5
Church Manorway . . .	338	183	155	46	96	272	66	19·5
Purrett Road .	249	151	98	39	46	189	60	24
"Slade" . .	265	171	94	35	69	237	38	14
TimbercroftRoad	273	148	125	45 8	58	200	73	26·7
High Street . .	401	217	184	46	110	301	100	25
Bostall Lane .	324	213	111	34	69	277	47	14·5
	3,398	—	1,321	38·5	754	—	654	16·3

Here it is seen at the expiry of four years from the beginning of the experiment in ten schools in the closing area 38·5 per cent. were unprotected by a previous attack, while in seven schools in the non-closing area 41 per cent. were unprotected. Measles attacked 22 per cent. of children in both districts, and 20 per cent. of the children in the non-closing area were left unprotected, as against 16·3 in the closing district.

Further, with regard to babies admitted since the outbreak in the closing division, 75 per cent. have already suffered before attendance, while in the non-closing division 76 per cent. suffered.

It is therefore clear that in the long run closing has had little effect upon the spread of measles. Bostall Lane school is an interesting example. At the end of the year 1904–5, although measles had appeared several times, outbreaks were cut short by class closure and 42 per cent. of the children were left who had not had measles. This seemed to be a signal success; but mark the sequel—measles continued to break out throughout 1906–7, sixteen separate class closures taking place. Notwithstanding these closures, no control over the disease could be permanently retained, and at the present time this school stands amongst those which have the lowest proportion of children who have not had measles.

Our experience shows the uselessness of closure as usually practised, and that closure applied in the only successful manner merely postpones measles for such a short time that the interference with school work, except under special conditions, is hardly justified; but that education of parents in the manner described, and the focussing of attention upon the disease, produces beneficial results which Dr. Davies describes in his paper.

A very similar investigation has been carried out by Dr. Eberstaller, of Graz, in Austria, and it is important to note that his results are practically in complete accordance with our own. He arrives at the conclusion that it is unnecessary to exclude from school children in the upper departments who have themselves had measles when a younger child in the house develops the complaint. He shows the futility of anything but

early closure (*i.e.*, upon the appearance of the first case), and he attempts to control measles by the exclusion for a few days, timed to include the twelfth day after exposure, of non-protected children. He gives the experience of 103 such closures, of which in forty-four instances a successful result was obtained—the first crop coming down in the closure period and no further cases occurring; in twenty-eight cases failure was experienced, and in twenty-one cases postponement for a short time only was effected. He refers to explosive outbreaks occurring in ill-ventilated, unhygienic schools such as we have found to occur in temporary school buildings in London. He has found very valuable the issue of warnings to parents almost in the exact form that we have been issuing in Woolwich and elsewhere.

His results in a well-to-do residential town of 125,000 inhabitants, where notification of measles is compulsory, are better than we have been able to effect in London under the conditions of life of the elementary school-going population at the present stage of development; but even in Graz a greater proportion of failures than successes is experienced.

Diagram II. Eglinton Road, 1904.

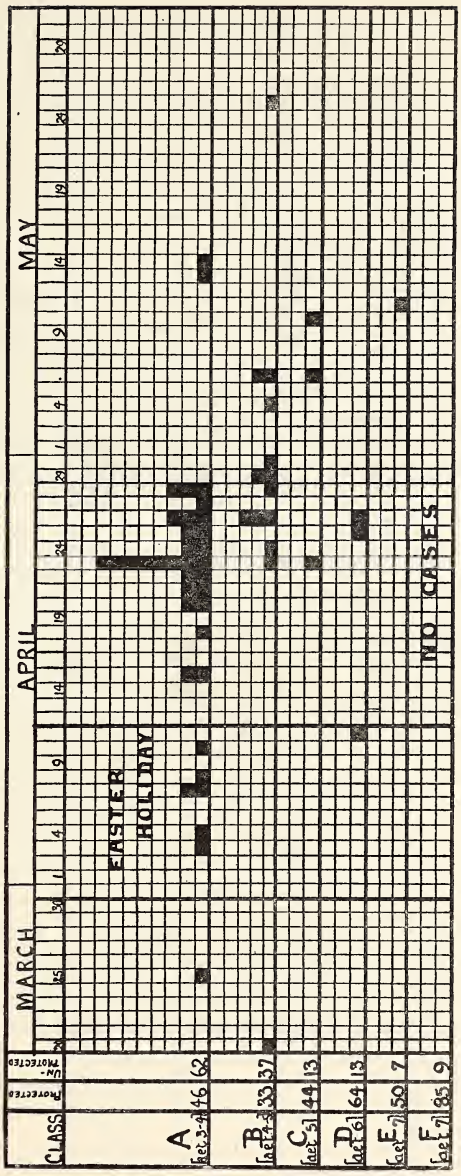


DIAGRAM III. MARYON PARK, 1904.

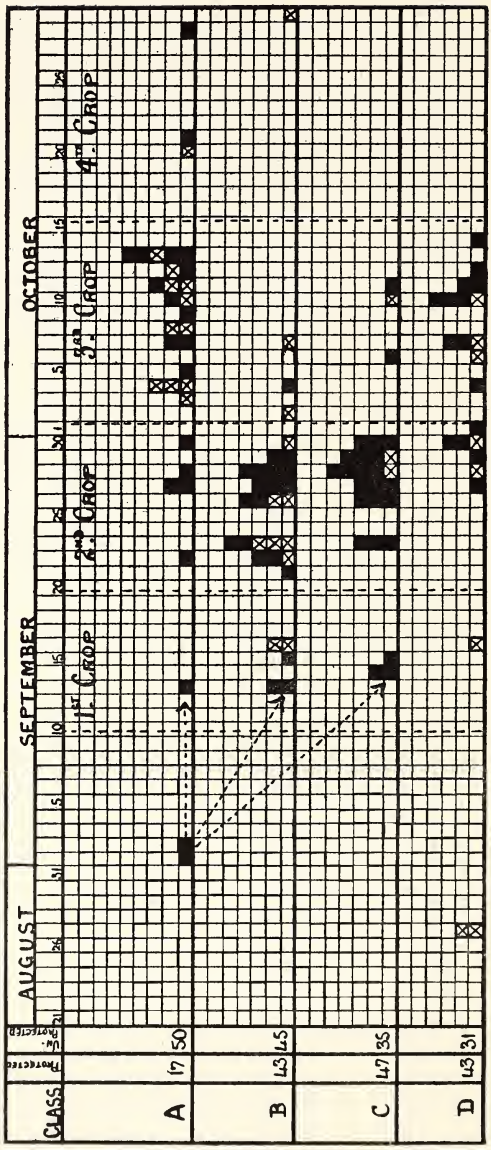


Diagram IV. Purrett Road, 1904.

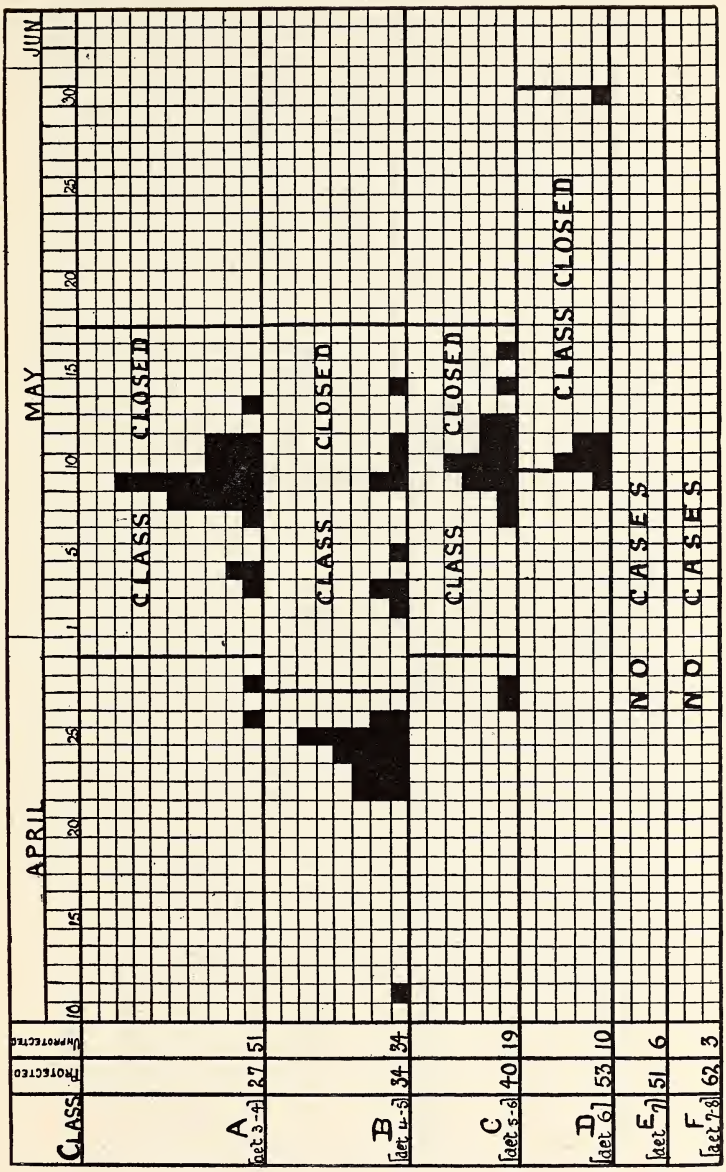
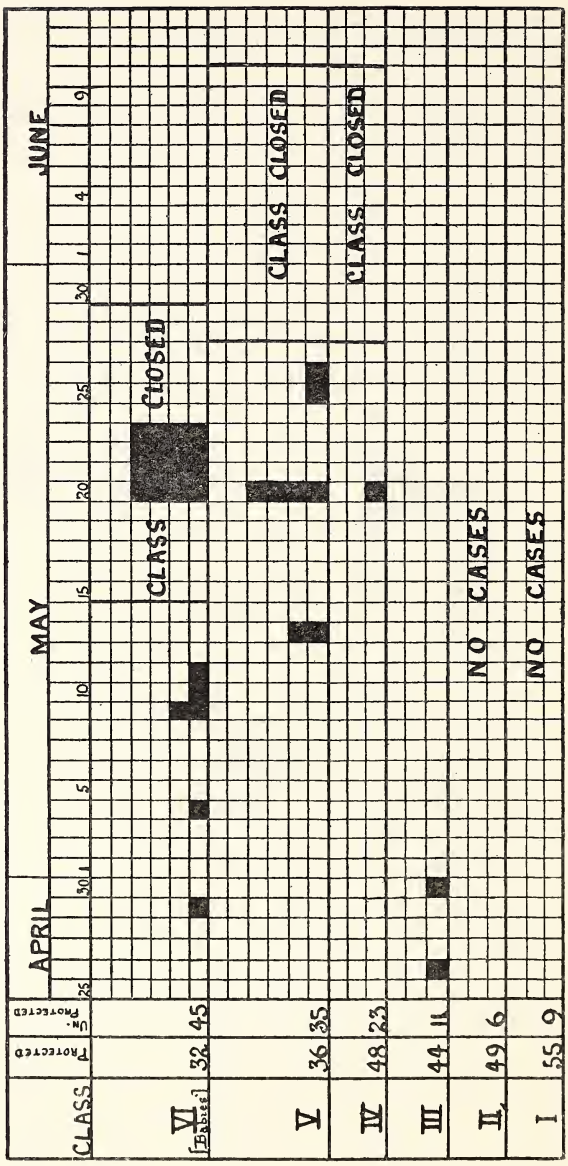


DIAGRAM V. VICARAGE ROAD, 1904.



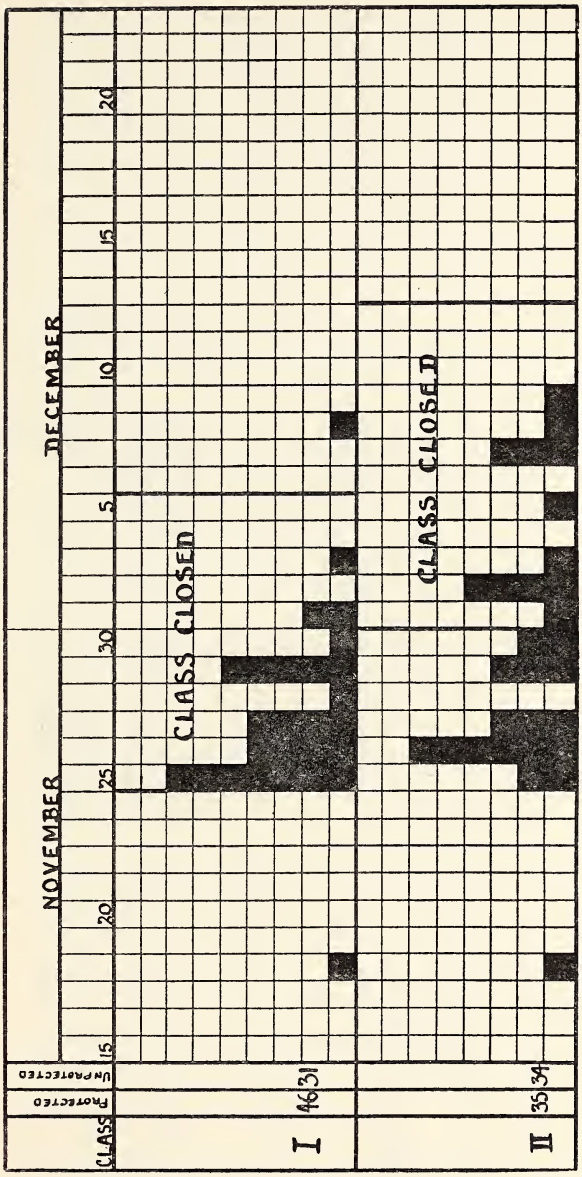


Diagram VI. Timbercroft Road, 1904.

DIAGRAM VII. DEANSFIELD ROAD, 1904.

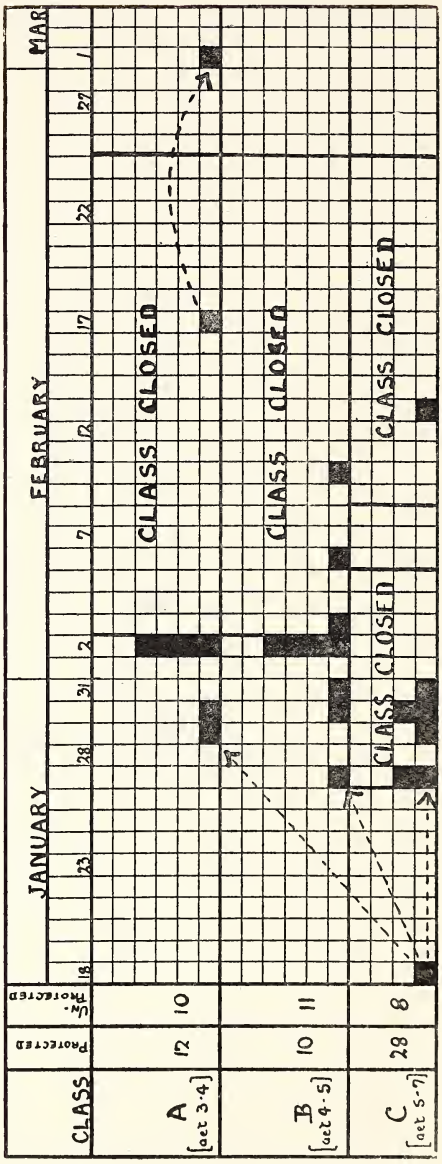
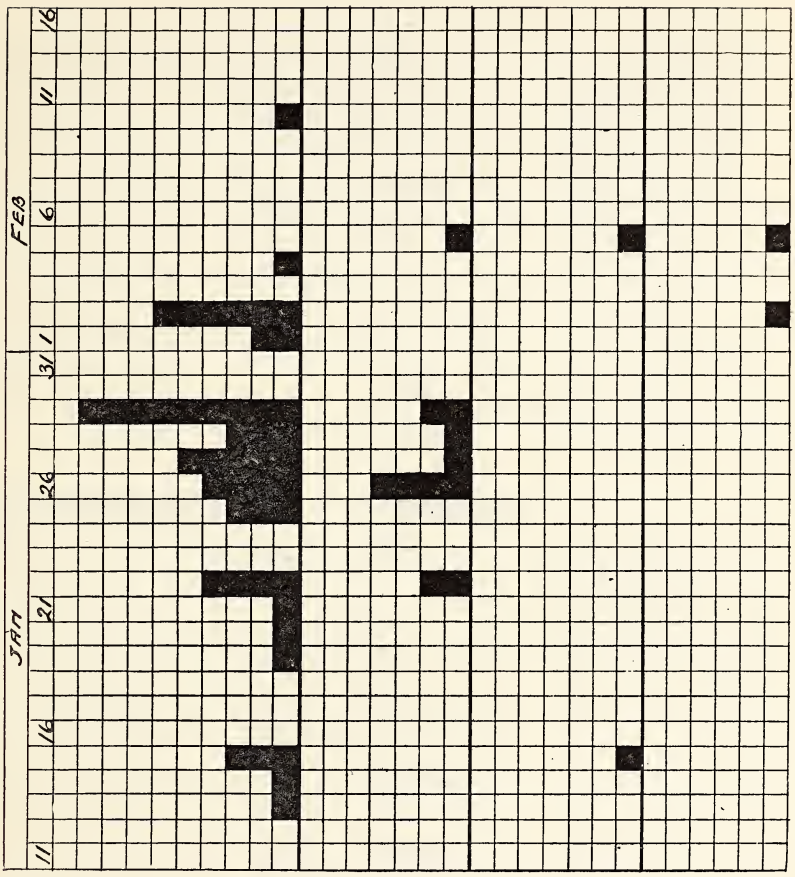


Diagram VIII. Elizabeth Street, 1902.



	No. of Children.	No. not previously had Measles.
Room F	130	66
Room E	72	22
Room D	50	7
Room C	52	5

Diagram IX. Bloomfield Road, 1902.

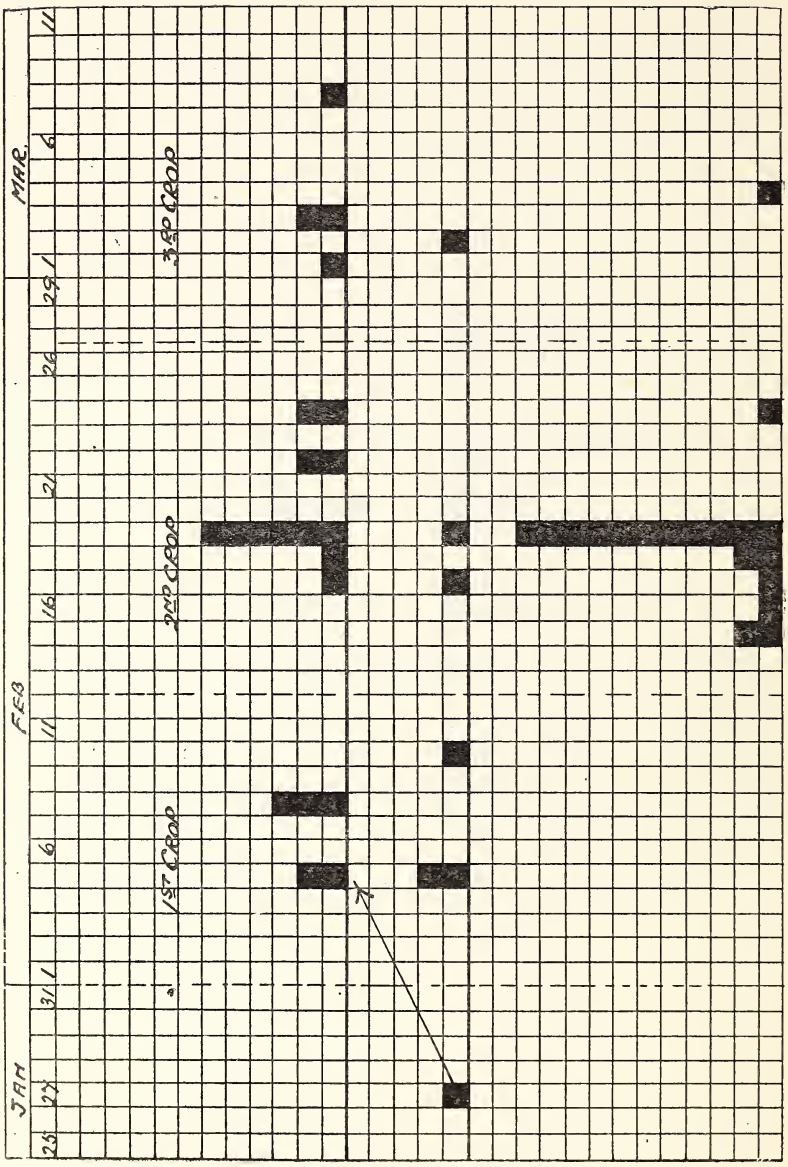
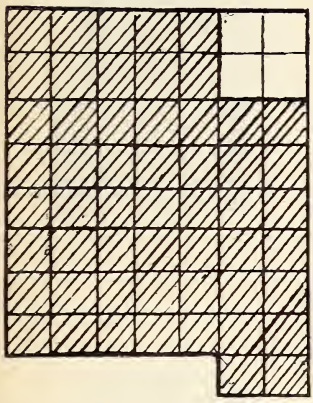


Diagram X. Eglinton Road, Woolwich (Infants' Department).

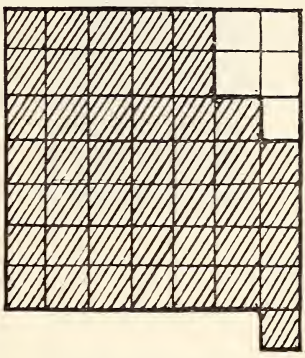
Reported to have had Measles ... Barred ///
„ not „ „ ... Plain
„ doubtful „ ... Barred \\\

Each Square represents a Child.

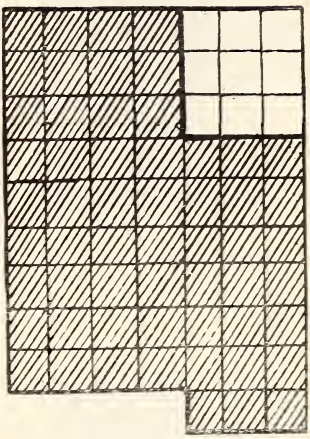
Class I.



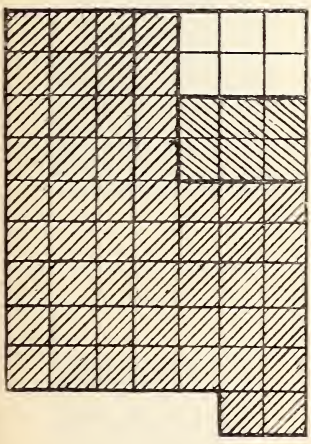
Class II.



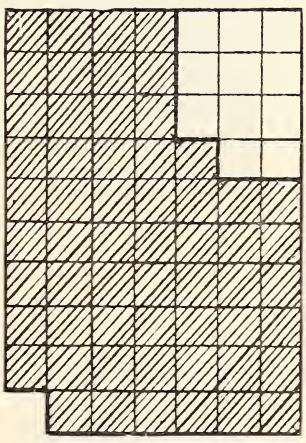
Class III.



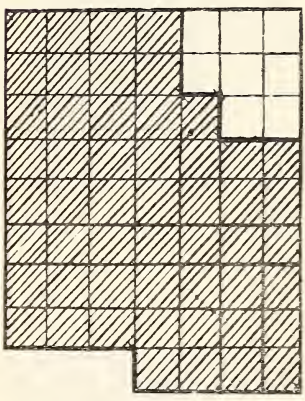
Class IV.



Class V.



Class VI.



Class VII.

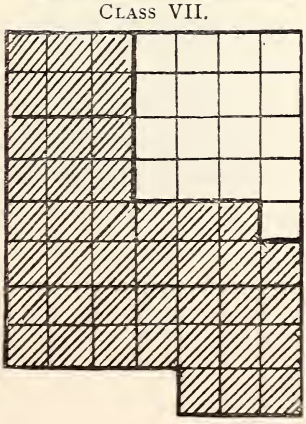
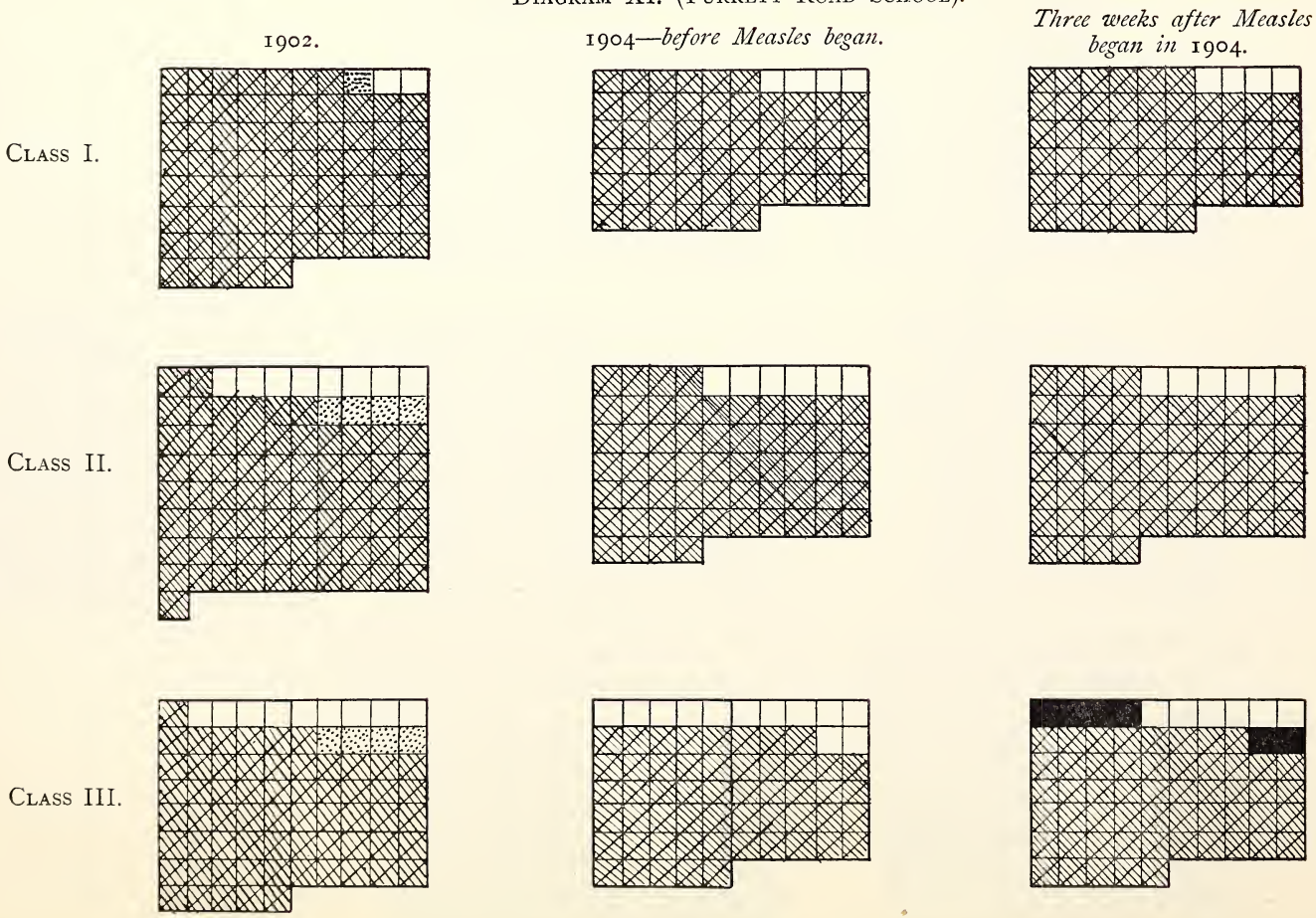
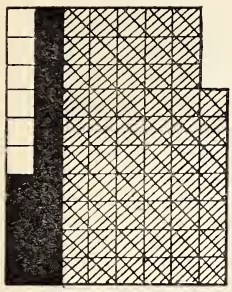
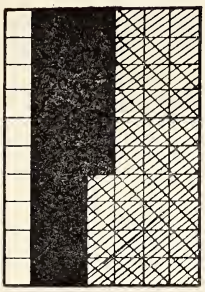
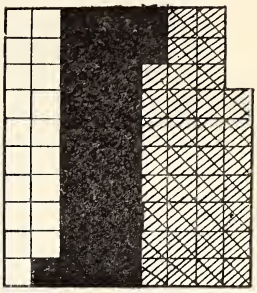


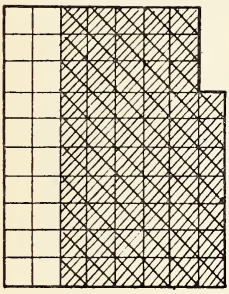
DIAGRAM XI. (PURRETT ROAD SCHOOL).

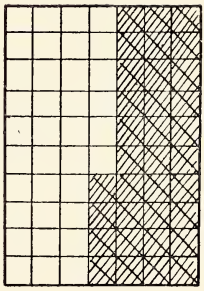


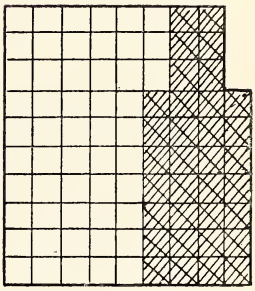


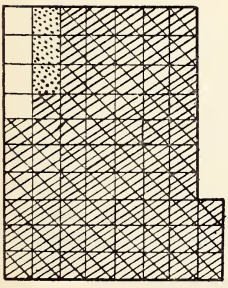




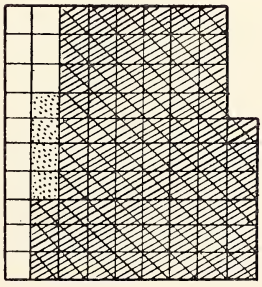




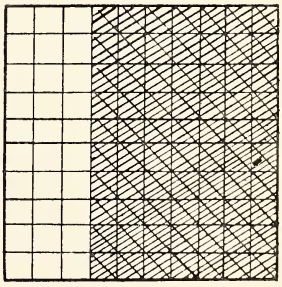




CLASS IV.



CLASS V.



CLASS VI.

APPENDIX IV.

1.

[M.O. 19A.] **LONDON COUNTY COUNCIL.**

Notice to	*From* **WOOLWICH.**
The Parent or Guardian of	The Head Teacher (Infants' Dept.),
_____	_____ *School.*

As a case of measles has occurred among the scholars in the class which your child attends, it is possible that.....may have contracted the disease. As it requires about twelve days for measles to develop after infection, you are requested to pay particular regard to the state of your child's health during the **NEXT THREE WEEKS**, and upon the slightest sign of illness to abstain from sending.....to school.

*Date*_____ _____

Signature.

10,000—11-11-05 [B 2089 [P.T.O.

NOTE.

Measles may be a very serious illness in young children, and many die from it. The early symptoms are those of a cold, which may be at first slight; there is generally running at the eyes and nose, sneezing, and possibly cough. Many children lose their lives because parents allow them to go out of the house, thinking that the indisposition is only a slight cold, when it is really measles.

2.

[M.O. 19.] **LONDON COUNTY COUNCIL.**

Notice to	*From*
The Parent or Guardian of	The Head Teacher (Infants' Dept.).
_____	_____ *School.*

As a case of measles has occurred among the scholars in the class which your child attends, it has been decided to close the class till _____. Measles is an infectious disease. You are therefore cautioned, in the event of your child showing any signs of this disease, to keep.....from contact with other children or from exposure in public places until a fortnight shall have elapsed after exposure to infection. A child who appears only to have a slight cold may have contracted measles and be dangerous to others. Any child who has contracted measles must not resume school attendance for one month.

*Date*_____ _____

Signature.

S.O.10—100,000.

Dr. FRANKLIN PARSONS (Local Government Board) remarked on the value of these exact inquiries by the authors on the value of school closing for measles. Measles not only caused far greater mortality than any other infectious disease, but it was also the disease which most frequently occasioned school closure, rather, however, with a view to prevent financial loss to the managers than to prevent the spread of the disease—closure being frequently not resorted to until a large percentage of the children were already absent. It was disappointing that early closure had not been proved to be more successful; but perhaps the experience of urban communities such as Woolwich and London was not applicable to rural villages, where children had fewer opportunities of meeting out of school and epidemics were less frequent than in towns. In any case any postponement of the age at which children contracted measles would be of value in lessening the mortality from the disease. .

Dr. W. F. UNIA STEYN PARVÉ (Brummen, Holland) said he was of the same opinion as Dr. Franklin Parsons, that though the success of closure of schools will be not great in towns, in the country the success will be better; the danger of infection there, is not so great after the closure, because the children are more isolated.

In his quality as chairman of one of the sanitary committees in the country of the Netherlands, he tried three times the closure of schools and school classes. In two cases, as the closure was early, the success was important; in the third case, already, in all classes and schools of the village, children were attacked, and the closure was too late to prevent the infection, but they had the success that, after the closure, no more crops occurred.

In the Netherlands the closure of the schools in case of measles is not regulated by law.

He has proposed to the municipal councils of some of the villages, in the district of the Sanitary Committee, to make these two prescriptions:—

1. In case of measles schools or school classes will be closed for fourteen days after the initial cases.

2. The admittance of children living in houses where cases of measles exists is prohibited.

Mr. JOHN T. WILSON (Hamilton) said that in Scotland the epidemic school grant still is in operation, with the result that schools are frequently closed on account of measles, with a view to improve the grant, not with a view to control the disease. When 50 per cent. of the attendance is affected, school closure will do no good. I think, therefore, it is a pity that the school grant should be based on attendance. In his county district, when epidemics occur at intervals of five or six years, school closure often does good; but the great difficulty in controlling measles, like most infectious diseases, is the difficulty of recognising the disease in its early and very infectious stage. Almost everyone seems susceptible; and when a child goes to school in the early and infectious stage the infection is widely diffused, with the result that the disease spreads like wildfire. The good work recently done in London and elsewhere investigating the spread of measles will, it is hoped, lead to the matter being taken up and preventive work put on a more scientfic basis.

Dr. L. M. BOWEN JONES (Carmarthen) said that when and for how long a school should be closed was one of the difficulties that a medical officer of health had to contend with. His experience in a small urban, as well as extensive rural, district was that school closure, as a preventative to the spread of measles, was useless, unless Sunday-schools could be closed as well. Measles was quite as infectious on Sundays as on Mondays; but although children might be kept from school on week-days, they could not be kept isolated on Sundays. In Wales the Nonconformists were loth to close Sunday-schools, and their fatalism and incredulity interfered with sanitation. He believed in educating the public as to the seriousness and importance of measles.

Dr. WILLIAM BUTLER (London) differed materially from several of the conclusions arrived at by the writers of the papers. The facts elucidated by the

authors did not harmonise with those he had presented. This was probably to be accounted for by the differences in the schools and in the type and home conditions of the children in the respective areas compared. It was certainly the case that in his district there were a large number of children under fifteen years of age who had not previously suffered from measles, and of these, as he had shown, only 32 per cent., where definitely and persistently exposed to the infection, by contact with other cases in the home, contracted the disease.

Mr. W. J. Abel, B.A., Barrister-at-Law (Nottingham), in reference to papers by Drs. Davies and Thomas, stated that in Nottingham they had also tried the experiments of closing classes, and even whole departments, upon the first onset of measles, and that the results did not appear to be more successful than in the London experiment.

He agreed with the readers of the papers that, under existing circumstances, it appears the most satisfactory results may be expected from—

1. Seeking by every possible means to educate parents, and especially teachers, in the early diagnostic signs of measles and other infectious diseases of childhood.

2. Excluding only "susceptibles" from classes attacked, and similarly applying quarantine exclusion only to susceptible "contacts."

Dr. Dennis Vinrace (London) considered that medical officers of health had their own *rôle*, and the same with medical practitioners; and he felt strongly that if medical officers of health, by leaflet or otherwise, would assist in impressing the public with a sense of the dangers, seriousness and after effects of such diseases as measles, whooping-cough and mumps, and so induce them to avail themselves of the services of medical practitioners for their treatment, they would have made a great advance in the right direction in the interests of all concerned. The aid and advice of the family doctor or other medical practitioner would tend to prevent the consequences of such diseases, and by frequent disinfection of rooms and by other means the recurrence would be materially lessened.

He could scarcely support the argument that the proneness of children under seven years of age to measles, whooping-cough and mumps was in itself a sufficient standpoint for keeping them away from school till that age. On this principle they might equally be kept away beyond seven years from risks of other diseases.

THE ATTENDANCE-PRIZE SYSTEM: ITS RELATION TO THE SPREAD OF INFECTIOUS DISEASE IN ELEMENTARY SCHOOLS.

By Ralph P. Williams, M.D., B.S., D.P.H.,
Assistant Medical Officer of Health, City of Sheffield.

The giving of prizes for attendance is an almost universal custom in the elementary schools of this country. Prizes, medals and certificates are given in the principal cities for attendance only, whilst a few authorities give prizes for efficiency and progress, provided that a high percentage of the attendances possible have been made. Thus Leeds requires 95 per cent. of the total possible attendances (this percentage allowing twenty-three school sessions to be missed per annum without disqualifying for a prize).

A few authorities allow for absence from infectious disease. Unfortunately, however, many do not make any allowance for illness of any kind. As a medical inspector of elementary schools this system has continually come under notice. A few arguments against this prize system show that the system is to be condemned. The only points in its favour are—

1. The Government grant in this country is based on attendance. Thus money spent on prizes is looked on as a good investment from the ratepayers' point of view, and likely to return an increase in larger grant obtained.

2. The training of children in regular and punctual habits.

3. If children are often absent there is a loss of sequence in their educational work.

Against the system I place the following more important arguments connected with the individual and the public health.

As regards the individual: children are sent to school with bilious attacks, have to be kept lying down, and even then may vomit on the floor of the school. They come for the simple reason that they should stay through the school session and not miss an attendance, which counts for a prize. Children suffering from visual defects, etc., are kept from medical attendance until the holidays, so that their prize should not be missed; and children have missed their prizes through a half-day's absence at the hospital, where they have been undergoing treatment for adenoids or other condition.

Many parents are nervous about their children and keep them away from school for very slight ailments; but this is much better than sending them, whatever their condition of health, in order to obtain a reward.

With regard to the public health: children are sent to school with the early symptoms of infectious diseases; they sit by healthy children, and thus disease is spread.

In one case a mother brought a little boy, begging the teacher to allow him to remain in school, although he was far from well, in order that he might not "miss his prize." This was on a Tuesday morning; on Thursday he died of scarlatina. Again, a child was kept in school all one day and up to noon on the second day; on going home to dinner she was then found to be delirious, and on a doctor being called in she was sent to the fever hospital during the afternoon.

Thus grave risk had been run of infecting the class. Supposing such symptoms as severe cold in the head occur when measles is prevalent and the child is attending the last few days of the sixth year of perfect attendance, with a silver medal in view, one can hardly blame ignorant parents if they send the child, although, even to the unprofessional eye, the child should rather be in bed than at school.

The weight of evidence is against the attendance-prize system, and some effort should be made to remedy it. During the past month Sheffield has revised its system. To qualify for any prize an attendance of 95 per cent. is required, but allowance is to be made for illness, infectious or otherwise; the rewards being given for progress and efficiency.

THE PREVALENCE OF PULMONARY TUBERCULOSIS AMONGST CHILDREN ATTENDING ELEMENTARY SCHOOLS.

By J. Edward Squire, C.B., M.D. (*Physician, Mount Vernon Consumption Hospital*), and Annie Gowdey, M.B. (*Assist. Med. Off. (Educ.), L.C.C.*)

The main purpose of the inquiry was to ascertain to what amount of danger of becoming infected with tuberculosis healthy (non-tuberculous) children were exposed by attendance at school.

It must be borne in mind that no case of the disease is immediately or directly dangerous to others unless by means of some discharges from the affected part tubercle bacilli are given off from the body.

This event occurs when phlegm is coughed up in tuberculosis of the lung or throat; in intestinal tuberculosis from the evacuations of the bowel; and when the disease affects the surface of the body or communicates with the surface by a discharging wound. Such cases are spoken of as examples of "open" tuberculosis. In tuberculosis of bones, joints, brain, liver, and various other internal organs, and in certain stages of tuberculosis of the lung, there may be no bacilli given off from the body of the sufferer, and such cases are not dangerous to others; they represent what is termed "closed" tuberculosis. In young children tuberculosis tends to attack bones, joints, mesenteric and other lymphatic glands; the lungs are not so frequently the primary seat of the disease as is the case with adults. When the lungs are affected there is, in young children, very little expectoration of phlegm. Children up to seven or eight years of age rarely expectorate; if phlegm is coughed up it is usually swallowed.

Thus there are *a priori* reasons why one would suppose that there would be little risk of infection amongst the younger children at school. As, however, children grow older, the tendency of the disease to affect the lungs increases, and the conditions obtaining amongst adults are more nearly approximated.

Another point which has an important bearing upon this inquiry is that, in the London County area, there are invalid schools for children physically unfit to attend the ordinary schools. These schools remove from the ordinary elementary schools many of the sufferers from spinal caries, hip-joint disease, and the like, as well as some cases of pulmonary tuberculosis. By a regulation of the medical department all cases of phthisis with expectoration, and all cases of surgical tuberculosis with discharging wounds, are considered dangerous to others and excluded from attendance, even at the invalid schools.

There was therefore no expectation of finding any large number of tuberculous children attending the elementary schools, but it was considered important to ascertain to what extent unsuspected cases of tuberculosis might be found amongst the scholars.

The preliminary inquiry as to the number of children attending school who were supposed by the teacher (or the parents) to be suffering from tuberculosis in any form gave the following estimated number of cases :—

No. of Children.	Phthisis.	Spinal Disease.	Hip Disease.	Lupus.	Other forms of Tuberculosis.	Tonsils and Adenoids.
58,934	335	56	43	7	154	2065
Percentage ..	0·55	0·095	0·072	—	0·26	3·5
		0·41				

It may be noted that the figures given in this return are very largely influenced by the personal equation of the teacher furnishing the return, the numbers in every case being an expression of a supposition.

Thus, out of 154 cases of tuberculosis amongst 58,934 children, eighty, or more than one-half, were returned from one school of 417 infants. This school was subsequently examined systematically, and the eighty cases reduced to twelve.

In one district the inquiry was extended so as to get the number of children on the roll who were not in attendance, being absent because of supposed tuberculosis.

The figures are as follows :—

	Roll.	Phthisis.	Spinal Disease.	Hip Disease.	Lupus.	Other forms of Tuberculosis.	Tonsils and Adenoids.
In school ..	5679	50	22	3	4	7	138
Absent ..	—	36	34	27	3	12	3

On receiving the preliminary report from the teachers, some of the schools were visited in which children were reported as suffering from consumption.

In one infant school, which may be taken as an example, two cases of consumption and seventeen cases of tonsils and adenoids were reported.

There was no evidence of past or present tuberculosis in the lungs of the two (brothers) reported as consumptive, and neither of them suffered from cough. With regard to tonsils and adenoids, the medical agreed with the teachers' report in all the cases reported, and in addition there were nine others suffering from adenoids. This may be taken as typical of the schools visited.

Children who have adenoids or enlarged tonsils often show indefinite physical signs in the lungs (patchy dulness, tubular breathing and crepitations) which suggest that they may be going to develop consumption. In course of time these signs completely disappear. They probably are due to partial atalectasis.

Most of the cases classed in the appended statistical tables as having "doubtful" physical signs in the lungs are examples of this condition.

For the actual systematic examination of the children, two schools were selected, one being the school from which the greatest number of tuberculous cases was returned, and, as a check on this, or in contrast to it, another school in the same district, but in a better neighbourhood.

The first school (Latimer Road) is filled by children of the very poor, the second is largely attended by the children of tradespeople in fairly good position.

The following table shows the result of comparing in these two schools the return sent in by the teachers and the actual results of examination. The value of the comparison is greatly diminished by the fact that we were not able to examine all the children in attendance, and that therefore we and the teachers are not reporting upon exactly the same children. The nearest approach to an exact comparison is in the Latimer Road boys' school, where we were able to examine all but two of the 335 boys on the roll.

	Roll.	Consumption.	Spinal Disease.	Hip Disease.	Lupus.	Other forms of Tuberculosis.	Tonsils and Adenoids.
LATIMER ROAD.							
Boys.							
Teachers' return	335	4	—	—	—	1	5
	Examined.						
Examination ..	333	2	—	—	—	6	123
Girls.							
Teachers' return	357	2	1	2	—	—	5
	Examined.						
Examination ..	318	—	—	1	—	4	146
Infants.							
Teachers' return	417	—	1	—	—	80	209
	Examined.						
Examination ..	243	—	—	—	—	12	137
ADDISON G'DENS.							
Mixed.							
Teachers' return	826	—	—	2	—	—	4
	Examined.						
Examination ..	776	6	—	—	—	*61	334
Totals.							
Teachers' return	1935	6	2	4	—	81	223
Examination ..	1670	8	—	1	—	83	740

* This includes all cases that could possibly be classed as of tuberculous predisposition.

These figures show the unreliability of statistics based upon what parents and teachers suppose. This is particularly shown in the column "Other forms of Tuberculosis," for the Latimer Road infants' school.

The general result of the systematic examination of the children in these two schools is shown below :—

Statistical Results as regards Glandular Enlargements and Pulmonary Tuberculosis.

School.	Number examined.	Glands.	Tonsils. and Adenoids.	Anæmic.	Lungs.		
					Tuberculosis.	Doubtful.	Non-tuberculous.
Addison Gardens							
Boys	366	343	118	101	6	11	9
Girls	410	192	216	127	0	3	7
Total	776	535	334	228	6	14	16
Latimer Road.							
Boys ..	333	261	123	114	2	—	12
Girls ..	318	239	146	101	—	—	12
Infants ..	243	196	137	54	—	—	8
Total	894	696	406	269	2	—	32
Grand total ..	1,670	1,231	740	497	8	14	48
Percentage ..	—	73·7	44·3	29·7	0·47	0·83	2·8

1·3

4·19 per cent.

The children were weighed and measured, their condition as to clothing, cleanliness and nutrition was estimated and noted, the teeth, throat, neck and ears were examined, and the chest examined without clothing.

To minimise the effect of differences of opinion as to the significance of any physical signs noted in the chest, all children in whom any divergence from healthy signs was noted were examined by both observers.

There is, as would be expected, a great difference between the children in the two schools in respect of clothing and cleanliness, but the differences in nutrition do not bear out the idea that the children in the very poor district are underfed.

What is far more needed than free meals is attention to the hygiene of the home and person.

With regard to the primary object of this inquiry, our observations confirm the expectation that there is little open tuberculosis in the schools, and indeed very few cases of pulmonary tuberculosis amongst the children in attendance at school. Out of 1670 children examined, signs in the lungs which would justify a diagnosis of tuberculosis were found in only eight cases, or less than 0·5 per cent. In fourteen other children slight signs—prolonged expiratory breath sounds, or dry (fine) crepitations at the margins of the lung—which might possibly be due to tuberculous infection, were found. Even if these are included as cases of actual tuberculosis, the percentage of possible pulmonary tuberculosis

only reaches 1·3 per cent. There is a further small proportion of cases in which enlargement of the veins of the chest suggest enlargement of the bronchial glands, possibly tuberculous, but without any evidence of lung infection.

One notable fact brought out by this examination is the very large proportion of children, nearly 75 per cent., who have their cervical glands enlarged or hardened. With this must also be taken the large number with enlarged tonsils (43 per cent.).

The glandular enlargements noted may be taken to indicate some toxic absorption, and certain deductions follow from the large proportion of enlarged glands. In the anterior triangle of the neck they may be taken to indicate absorption from the fauces and pharynx, and possibly represent the constant breathing of tainted air. The enlarged glands behind the sterno-mastoid represent absorption or irritation from the scalp. In a few instances amongst the better class children, and in a much larger proportion of the children in the poorer neighbourhood, the source of the irritation is found in pediculi and nits. This is especially the case amongst the girls.

Enlargement of the maxillary glands is frequently due to decayed teeth and bacterial infection through these. The hygiene of the mouth is almost entirely neglected. The use of the tooth-brush is practically unknown amongst the children of these schools, and parents are extremely careless about the care and treatment of the teeth.

The general neatness and cleanliness of the children improves in the higher standards, showing that the influence of school has a good effect.

It is also noteworthy that anæmia is found in nearly 30 per cent. of all the children examined, and the proportion amongst the children of the prosperous neighbourhood is as great as that of the poorer school. In many cases an arterial or venous murmur in the neck or a hæmic murmur over the heart is found where the mucous membranes are of good colour.

The conclusion is forced upon one that the chief obstacle to the children's obtaining full advantage of the school teaching is to be found in the faulty hygiene of the home. Even in the really poor district little indication is found that the clothing and the food were insufficient. The clothing is often ragged, but sufficient for warmth. Stockings are generally in holes and boots faulty, but the rest of the clothing is not deficient in amount, though it is too frequently extremely dirty. The importance of cleanliness seems to be quite unrealised.

The inclusion of domestic and personal hygiene as one of the subjects to be taught in all schools cannot surely be much longer delayed.

REVEALED TUBERCULOSIS IN CHILDREN AT SCHOOL AGES FOUR TO FIFTEEN.

(*Abstract.*)

By the late H. C. Lecky, B.M., D.P.H., and W. Claude Horton, M.B.

At the suggestion and request of Dr. Newsholme we have examined a number of school children to determine the amount of revealed tuberculosis among them. We examined children from the following institutions :—

	Boys.	Girls.	Totals.
A parochial industrial school	162	79	241
The workhouse and infirmary	42	32	74
An elementary day school	323	168	591
	527	279	806

The difficulty of diagnosing the early forms of tuberculosis in children is very great ; particularly is this the case with tuberculosis of the lungs and of the glands. We have stated in detail our criteria for diagnosis. Our method of examination was to strip the child to the waist and to examine in order every system except the abdomen. The results are as follows :—

TABLE I.

3 cases of pulmonary tuberculosis.
40 with other lung signs.
7 with tuberculous glands.
6 with probably tuberculous glands.
169 with enlarged glands.
7 with tuberculous bones and joints.
3 with tuberculous skin disease.
571 in whom no evidence of tuberculosis was found.
806 total number of children examined.

Comparison with the results of others.—The following table (p. 674) gives our results as a whole and compares them with those obtained in other towns.

Collateral evidence of the amount of tuberculosis among school children can be obtained from (*a*) the number of notified cases of pulmonary tuberculosis, and (*b*) the number of deaths from all forms of tuberculosis among school children, both being stated in proportion to the population at school age ; (*c*) the certified medical causes of non-attendance at school, and (*d*) the causes leading children to be refused admission to school when they have reached school age.

(*a*) and (*b*) While 190 children per 100,000 of the population at the age period four to fifteen are annually notified to be suffering from pulmonary tuberculosis, only seventeen die from that cause (figures based on returns in Brighton, 1904–6). Assuming the notifications to be correct, the deduction is that the disease becomes arrested, for experience negatives the conclusion that there are many cases of chronic tuberculosis among children (*e.g.*, of 1265 out-patients attending the Children's

TABLE II.

COMPARATIVE RESULTS OBTAINED IN EXAMINING SCHOOL CHILDREN, STATED AS PERCENTAGES.

Place. Authority. Year.	Total numb r of children examined, ages 4–15.	Lungs.		Glands.					Bones and Joints (Tuberculous).	Tuberculosis of Skin.	Tuberculosis of Abdomen.
		Pulmonary Tuberculosis.	Other lung diseases, mainly Bronchitis.	Enlarged.	Suppurating.	Scars.	Palpable.	Not palpable.			
Dundee. Dr. A. P. Low. 1905.	517	0	12·1 (some probably tuberculous)	37·3	—	—	—	—	0	0	—
Dunfermline. Dr. Ash. 1906.	1371 *	0	5·0	—	—	—	—	—	—	—	—
	1500 *	—	—	3·7	0·2	1·8	54·7	39·6	0·33	0	—
	323 *	0	15·5	—	—	—	—	—	0·31	0	—
	205 * (ages 5–7)	—	—	1·0	—	2·0	31·7	65·3	—	—	—
Edinburgh. Dr. Mackenzie. 1903.	600	2·3	0·8	18·5	—	—	—	—	0	0	—
Aberdeen. Professor Hay. 1903.	600	0·5 (probably)	1·3	1·5	0·5	—	—	—	0·1	0	0
Edinburgh. Edinburgh C.O.S. 1906.	1318	1·4	3·4	—	—	—	43·9	—	0·1	0	0
Glasgow. A. H. Edwards. 1904.	750 (ages 6–15)	3·5		17·7	—	—	—	—	—	0	0
Brighton. Horton and Lecky. 1907.	805	0·37	4·96	20·96	— †	— †	100	0	0·87	0·37	—

NOTE.—A dash (—) implies that incomplete or no observations under this heading were recorded ; 0 implies negative observations.

* The numbers given in these two lines relate to the same group of children.

† 0·87 per cent. of the Brighton children had tuberculosis, and 0·74 per cent. probably had tuberculous glands, in addition to the 20·96 per cent. of enlarged glands.

Hospital, Brighton, between January and June, 1907, only six were diagnosed as pulmonary tuberculosis).

(*c*) Dr. Greenwood, of Blackburn, in the years 1904–6, has examined 1028 elementary school children, whose health, and therefore fitness for school, had been called in question by the school-attendance officers. He found 6·7 per cent. of pulmonary tuberculosis, and 5·1 per cent. of other forms of tuberculosis. Taking this high percentage in conjunction with the low percentage in the series in Table II., it follows that a child does not remain long in school before his ill-health is recognised.

(*d*) In Zurich every child is examined medically before being allowed to enter the elementary schools. In 1899, of 2625 children, 145 were rejected on medical grounds; in 1902, of 2994 children, 142 were rejected. The cause of each rejection is given, and in no case is any form of tuberculosis mentioned. This is confirmatory evidence that very little revealed tuberculosis exists among children sent to the elementary schools.

Conclusions.—(1) The amount of revealed tuberculosis among school children is very small. We found three cases in 806 children. Similar examinations at Dundee, Dunfermline and Aberdeen support this conclusion. (2) The extremely small percentage of cases of pulmonary tuberculosis found among unselected school children in every centre investigated, except Edinburgh, and the total absence of refusals to allow school attendance in Zurich on account of tuberculosis, as contrasted with the relatively large percentage of pulmonary tuberculosis found among school children specially referred to a doctor owing to a suspicion of or evident ill-health, indicate that when pulmonary tuberculosis does start in children they quickly show it by failing health and are removed from school. The schools cannot, therefore, be considered as places where the children spread much tuberculosis.

THE DANISH PUBLIC SCHOOL AND ITS RELATION TO TUBERCULOSIS.

By Dr. Jessen, Copenhagen.

The famous discoveries that were made during the last quarter of the past century in regard to the origin and nature of tuberculosis have also in Denmark given the impulse to energetic endeavours with the view of preventing or confining the havoc of this disease. Among such endeavours those should rank premier that are aiming at protecting the growing generation, and in this respect I consider our new Tuberculosis Act to be of so great importance that it deserves to be generally known.

During the years 1890–1899 the mortality from tuberculosis in all its forms was, according to statistics, 14 per cent. of all deaths in Denmark.

The proper phthisis, which is not only the most frequent, but also the most contagious form, and consequently, in relation to the present subject, the most important one, was the cause of 10 per cent. of all deaths.

The death-rate, it is true, was steadily decreasing during the said period—also for school children—but not as much as the death-rate for other infectious diseases.

A low death-rate should not lead us to believe that tuberculosis of the lungs is rare among school children, as it must be remembered that phthisis is a chronic disease which sometimes uses years for its development.

I do not, however, consider the danger of contagion from child to child as very great in the Danish schools owing to the fact that children suffering from tuberculosis in most cases will be taken under medical treatment and removed from school long before the infectious stage of the disease is reached.

Investigations of the mortality from tuberculosis among teachers which I have had an opportunity to make as physician to the State Life Insurance Institution here have, on the other hand, proved the existence of a real danger of contagion from teacher to child.

Out of 1008 teachers insured in the institution who died in the course of the years 1878–1903, 195, or a number equal to 19·3 per cent., died from tuberculosis, while the death-rate from that disease for all the insured was only 9·2 per cent.

When we look at that enormously high death-rate, and consider that the teacher is economically interested in continuing his school work as long as possible, and that he is likely to do so even if he is aware of the contagiousness of his disease, we must acknowledge that this is a question of the greatest importance in the school hygiene.

A phthisic child is always a danger in a schoolroom, but a teacher with open tuberculosis is a social crime when he is allowed to continue his schoolwork.

To help out this and other important questions, the Danish Tuberculosis Act has given us something new and good which deserves to be generally known. I shall therefore give a short sketch of the principal enactments of this law in reference to the school.

It is enacted by the said law (of 14th April, 1905) that no teacher or lady teacher may obtain an appointment in the public schools till it has been proved by a medical certificate, of no older date than three months from the time of appointment, that the applicant is not suffering from infectious tuberculosis in the lungs or larynx.

This rule applies not only to the first appointment, but also to each subsequent appointment to another office.

It further says, when a teacher is discharged on account of infectious tuberculosis in the lungs or larynx, he is to receive an annual pension of two-thirds of the salary he is drawing at the time of such dismissal.

In regard to the pupils, the law enacts that if a school child is suffering from tuberculosis, it is the duty of the teacher, as soon as he has become cognisant of the fact, to report to the school committee, who then have to give their attention to the child, and if the same is proved by a medical certificate to suffer from infectious tuberculosis, the case shall be submitted to the School Board, who will decide whether the child may be exempted from attending school.

Should this happen, it rests with the School Board to choose a way of giving the child a suitable education out of school.

One-fourth of the expenses incurred hereby to be borne by the parish and the three-fourths to be borne by the State.

By a ministerial communication of a later date the teachers have been exempted from the cleaning of the schools, which is in future incumbent on the community.

The law further enacts that the floors of the classrooms must be perfectly tight, and the necessary puttying between the boards kept in proper repair. The floors are to be varnished, painted, covered with linoleum, or otherwise (for instance, by "dustless oil") be protected against damp.

In future construction of classrooms the walls have to be glazed.

The classroom shall be aired daily, as well before the instruction commences as during recess, and when the instruction is finished.

Tables, forms, and the master's desk must be wiped down daily with a wet cloth in order to leave them free of dust when the instruction commences.

The floors to be washed daily and once a week, together with the panelling, in soap and water.

The classrooms are to have a thorough cleaning once a year.

Spitting on the floor of the classroom is strictly forbidden, and it is not allowed to use spittle for cleaning slates.

Spit-bowls to be filled with fresh water and cleaned every day.

In a circular of this spring the Ministry has requested the School Board to state the number of school children suffering from tuberculosis, and to report on the measures that have been taken in their behalf.

All the replies have not been returned, so no definite result is arrived at for the present, but as soon as all the necessary materials are gathered, the Ministry will take steps to solve the problem of educating these children in the best way.

TUBERCULOSIS AMONG SCHOOL CHILDREN.

By T. N. KELYNACK, M.D., M.R.C.P.,
Hon. Physician to Mount Vernon Hospital for Consumption, and The Infants' Hospital, Westminster.

IN the conduct of the anti-tuberculosis campaign measures for the study, prevention and treatment of tuberculosis among children have not hitherto received the attention which they demand, particularly among English-speaking people. France has won distinction by its wisdom in providing for the protection of its tuberculous and tuberculously disposed children. Germany has set an example in the establishment of hygienic and open-air schools. Other countries are taking steps to protect the schools and preserve the scholars from tubercle. But in the United

Kingdom and America comparatively little has been done to provide systematic and collective action for the safeguarding of children from tuberculosis. Our available measures are quite inadequate to secure suitable prophylactic care of predisposed cases, the early recognition of tuberculosis in its beginnings and the rational hygienic management of the subjects of tuberculous disease. In this country it is estimated that "more than one-third of all deaths at the ages fifteen to thirty-five are from phthisis."

It is now becoming abundantly clear that a very large proportion of the heavy mortality from consumption in adult life is the outcome of a tuberculous infection in infancy and childhood. Tuberculosis is a disease which commonly lies latent for many years. The harvesting of tuberculous affections in mature life is in great measure dependent on a tuberculous seed-sowing in early days.

Pathological Evidence as to the Frequency of Tuberculosis among Children.

Dr. Arthur Newsholme shows that, taking the ages five to fifteen, tuberculosis is the registered cause of death each year of only about seven out of every 10,000 children living, while pulmonary tuberculosis only supplies three out of these seven.

But these numbers give little or no idea of the widespread prevalence of tuberculous disease among children. A vast amount of impairment of health results directly from tuberculosis, without producing a mortality which can be statistically expressed.

Published records seem to show that evidence of a tuberculous infection are met with in about 40 per cent. of all children dying under fifteen years of age. Tuberculosis is but rarely met with in infants under three months, but after this age it increases progressively, and is found in from 7 to 8 per cent. of all autopsies on children up to one year.[1]

Taking all cases submitted to *post-mortem* examination under the age of fifteen years, Harbitz[2] finds in Christiania tuberculous lesions in 42·5 per cent.; Hamburger and Sluka,[3] in Vienna, 40 per cent.; and Comby,[4] in Paris, 38·5 per cent.

Nageli,[5] of Zurich, has shown that *post-mortem* examination demonstrates evidences of tuberculous invasion in 97 per cent. of all cases under forty years of age.

Clinical Evidence of Tuberculosis among School-going Children.

It should be said at once that the recognition of early tuberculosis in children is often extremely difficult. The most common seats for tuberculous involvement are the glands of the abdomen and thorax. Affection of the lungs, bones and joints appear to be nearly always secondary to infection from tuberculous glands.

It is clear that a hasty and merely perfunctory examination may

[1] A. D'Espine, "Fréquence Comparée de la Tuberculose chez l'enfant et chez l'adulte," *Rapports II^me^ Congrès International des Gouttes des Lait*, Bruxelles, 1907.
[2] Harbitz, "Untersuchungen über Lokalisation des Tuberculose," 1905, S. 99.
[3] Hamburger und Sluka, *Jahr. f. Kinderheille*, 1905, T. 62, S. 517.
[4] Comby, *Presse Méd.*, 1906, p. 766.
[5] Nageli, *Virchow's Archiv*, 1900, T. 160, S. 426.

not only be useless but actually misleading. A medical examination, to be of directing value, must be thorough, and requires to be conducted by one experienced and expert in the clinical detection of pulmonary and other forms of tuberculous disease.

And here, in passing, it should be urged that in every school of any size a medical officer's consulting-room should be provided, equipped with couch and all necessary outfit for a complete clinical examination.

With the hitherto limited means for securing medical examination of school children in this country it has been almost impossible to secure reliable data relating to the occurrence of tuberculosis. In the course of a rapid general examination, and where special attention is being devoted to mental deficiencies and defects of the sense organs, it is hardly likely that we can expect statistics which will afford anything like a complete estimate of the amount of incipient and latent tuberculosis among school children.

The very meagre, incomplete and imperfect returns which are at present available probably considerably underestimate the extent of tuberculous disease in our schools.

In Edinburgh, according to Dr. Leslie Mackenzie,[1] fourteen cases of phthisis were discovered among 600 children, a percentage of 2·3. In Aberdeen Dr. Matthew Hay discovered only three cases among 600 children, a percentage of 0·5.

An investigation conducted by the Edinburgh Charity Organisation Society on 1318 scholars in the Canongate schools, discovered nineteen cases of pulmonary tuberculosis, or a percentage of 1·44.

Dr. Alfred Greenwood,[2] Medical Officer of Health and Medical Officer to the Education Committee of Blackburn, has found among 1028 children, selected specially by the school attendance officers in order that they might be medically examined as to their fitness or otherwise for school, 6·2 per cent. of cases of phthisis.

In an inspection of 400 children in attendance at two Blackburn schools, only one case of phthisis was discovered, a percentage of only 0·25.

During the year 1906, 709 children were brought to Dr. J. B. Wilkinson, Medical Officer to the Oldham Education Committee, for medical examination. Of this number fifty-four were suffering from tuberculous disease, and seventeen of these fifty-four cases were suffering from involvement of the lungs. Thus, amongst the 709 children referred by the school attendance officers to Dr. Wilkinson, he found 2·3 per cent. of phthisis.

Dr. William Robertson,[3] Medical Officer of Health for Leith, found in a school of 806 scholars in his district six cases of tuberculosis of the lungs, a percentage of 0·74.

It is very desirable that we should have reliable information as regards the prevalence of tuberculosis in the *schools in rural districts*. It is probable that a considerably higher percentage of cases would be there discovered than is met with in urban schools.

The experience of London cannot, I think, be taken as any guide to

[1] L. Mackenzie, "The Medical Inspection of School Children," Edinburgh and Glasgow, 1904.

[2] A. Greenwood, "Pulmonary Tuberculosis in Lancashire School Children," *The British Journal of Tuberculosis*, July, 1907.

[3] W. Robertson, "Tuberculosis among School Children in Scotland," *The British Journal of Tuberculosis*, July, 1907.

the country generally. In the metropolis, mothers are able to obtain medical assistance earlier and more easily than is the case in country districts and many provincial towns. The returns of Dr. J. E. Squire are, however, of interest and value in going to show that active and open tuberculosis is exceptional among the scholars of our metropolitan schools.

Dr. Squire[1] states: "A careful examination of about 900 children in one school, in a very poor neighbourhood, gave the proportion of cases of possible tuberculosis of the lungs at about 1·5 per cent., and of other forms of tuberculosis at less than 2 per cent. The cases of probable tuberculosis of the lung amount to 0·5 per cent. These cases of pulmonary tuberculosis had no cough, and were unsuspected until discovered by examination of the chest. The cases of tuberculosis in other parts were nearly all inactive—scars of abscesses in the neck, cured hip disease, or large heads from hydrocephalus."

Tuberculosis in Higher and Secondary Schools.

Active tuberculous lesions are rarely met with in our old-established public schools for upper-class boys. Dr. Clement Dukes informs me that he has seen but few cases at Rugby. As far as I have been able to gather, medical officers of other similar boys' schools have had a like experience. Statistics from such schools, however, offer no guide as to the frequency of tuberculosis among the class of boys from which the scholars are drawn, for the family practitioner is practically always consulted as to the physical fitness before a boy is sent to this class of public school. These schools also are subject to more or less strict supervision, so that departures from health are early brought under skilled observation, and the boy sent home often before definite manifestations of tuberculous disease have developed.[2]

As far as I know there is no definite evidence to show to what extent tuberculosis develops among *girls in boarding-schools*. But judging from my own clinical experience of consumptive girls and young women, I am under the impression that latent tuberculosis prevails among many so-called anæmic and delicate girls in boarding-schools to an extent but little imagined.

In our higher and secondary day-schools medical inspection is very desirable, and particularly in respect to the early detection of tuberculous disease and the recognition of tuberculously disposed children.

Tuberculosis among School Teachers.

In considering the prevalence of tuberculosis in schools it is very necessary to inquire as to the occurrence of the disease, particularly in the form of consumption or pulmonary tuberculosis among teachers. During the last few years I have met with a considerable number of such cases among both male and female teachers in our public elementary schools. In a number of these cases there was also involvement of the larynx. It seems probable that teachers are specially prone to laryngeal tuberculosis.

[1] J. E. Squire, "Tuberculosis among Children in the Elementary Schools of London," *The British Journal of Tuberculosis*, July, 1907.

[2] See reports of Medical Officers of Schools Association.

Dr. Tatham has shown that school teachers in England and Wales suffer heavily from pulmonary tuberculosis, and I believe the same is true for Scotland and Ireland. Returns from the United States and Canada also show that the mortality from consumption among teachers is considerably above the average. It is evident that many teachers continue their work long after they have become the subjects of "open," and therefore presumably infective tuberculosis. The presence of a consumptive teacher in an insanitary school, and in charge day after day, for long periods at a time, of debilitated and tuberculously disposed children, is an undoubted danger and a grave risk which no education authority should permit. And yet in many schools no systematic examination of teachers takes place, and, unfortunately for most teachers who fall victims to tuberculosis, there is little or no adequate provision for effective and rational treatment.

In Denmark every teacher on appointment to a public school is obliged to present a medical certificate, not more than three months old, stating that he is not affected by any contagious form of tuberculosis of the lungs or the larynx. If a teacher is found to be suffering from either of such forms of tuberculosis he may be dismissed with a pension of not less than two-thirds of his previous salary.[1]

School Children Predisposed to Tuberculosis.

Among upwards of 1800 children belonging to various branches of the National Childrens' Home and Orphanage we find that something like 25 per cent. are of consumptive parentage, or are to be considered as specially predisposed to tuberculosis.

In some orphanages I believe even a larger number of children are the off-spring of tuberculous parents. All such cases should be submitted to frequent medical inspection and safeguarded by all rational measures, and brought up both in school and at other times as far as possible according to open-air methods.

The medical officer of schools should be able to render very effective aid by examining the upper-air passages, tonsils, and other channels by which tubercle invades children; and also by the early recognition of those infectious and other ailments which so frequently light up and complicate a long-standing or latent tuberculous lesion.

Parental and Home Influences, and Tuberculosis at School Ages.

I believe most of the tuberculosis met with in children is home-born and home-grown. Although tuberculosis, judged from present available statistics, is apparently not commonly met with in the school, it is, as every experienced physician knows, widely prevalent in the home.

The late Sir William Broadbent estimated that no fewer than 6391 children under five years of age died in London alone from tuberculosis disease during 1901–3.

Dr. Hyslop Thomson states that "in Glasgow tuberculosis of the lungs is a very prevalent disease in childhood. Of 779 patients, of all ages and both sexes, suffering from various affections of the respiratory system, but principally phthisis, no less than forty-three were children

[1] V. Bie and V. Maar, "The Campaign against Tuberculosis in Denmark," *The British Journal of Tuberculosis*, April, 1907.

under the age of sixteen, in whom there existed unmistakable evidence of the presence of pulmonary tuberculosis." [1]

Constant demand is made for the admission of children to many sanatoria. Dr. W. Goodchild, in the current report of the Blencathra Sanatorium, Cumberland, states that "the number of children admitted amounts to 12 per cent. of the total admissions of the year."

Even in very young children consumption, with pulmonary discharge containing tubercle bacilli, occurs much more frequently than is generally realised. This has been conclusively demonstrated by Professor Emmett Holt. In a recent communication which he has sent me he states that "during the nineteen months ending May 1, 1907, sixty-seven cases of pulmonary tuberculosis have been treated in our New York Babies' Hospital, sixty-two of these being children under two years and fifteen under six months of age. The diagnosis rested upon finding bacilli in the sputum in fifty-four of the living cases; upon *post-mortem* examination on ten; and of the remaining three, one had tuberculous meningitis (tubercle bacilli were found in the fluid drawn by lumbar puncture), one reacted to tuberculin, and the third presented typical clinical symptoms of pulmonary tuberculosis. In only half of these cases was any consolidation of the lungs noted at the time the diagnosis was made, and in nine cases there were no pulmonary signs whatever, the infants having been admitted for other conditions than tuberculosis." [2]

By a special method of collecting the sputum, Professor Emmett Holt was able to demonstrate the presence of tubercle bacilli in 80 per cent. of the cases, and "the possibility of infection at home was known to have existed in at least 40 per cent. of the children." It is clear that an experienced school nurse who is enabled to visit the homes of the scholars may do much to arrest the spread of infection among the children of a family. It is very necessary that every school nurse should be well trained in anti-tuberculosis methods, and be able to render practical instruction in the home conduct of open-air and other hygienic measures.

Tuberculosis and Insanitary Schools.

A word needs to be said regarding the non-hygienic condition of many schools. Not a few offer conditions known to be highly favourable to the development of tuberculosis. It is well also to remember that some buildings used as schools by day are available for all sorts and conditions of healthy and diseased adults and children on Sundays, and often too on week-nights.[3]

It is to be hoped that medical officers of schools will be granted powers to deal with these conditions.

The Treatment of Tuberculous School Children.

It is hardly within the scope of this paper to deal with the various measures which should be adopted in dealing with tuberculosis and tuberculously disposed children. When, however, the State undertakes

[1] H. Thomson, "Pulmonary Phthisis: its Diagnosis, Prognosis and Treatment," London, 1906.

[2] Emmett Holt, "Some points in the Diagnosis of Tuberculosis in Infancy and Childhood," *The British Journal of Tuberculosis*, October, 1907.

[3] See "Report of the London County Council on the Elementary Schools of the Metropolis."

the medical inspection of its public schools it will probably not be long before it is compelled to take the next logical, rational and necessary step of providing for, or seeing that suitable therapeutic measures are available for all tuberculous children.

School sanatoria are badly needed for tuberculous and tuberculously disposed children in this country. Experience shows that it is most desirable that young subjects should be dealt with in institutions specially reserved for them. Wherever possible they should be subjected to a modified form of school discipline, and, as far as may be practicable, systematic training.

Where a school child is living in close association with consumptive parents, or the environment is definitely tuberculous, it would be well if some such method could be adopted as that advocated and carried out by the late Professor Grancher in Paris, where children were removed from tuberculous homes and boarded out with healthy foster parents in the country at the low cost of a franc a day.[1]

Much benefit is likely to accrue from the adoption of the German method of establishing forest or open-air schools for children threatened with tuberculosis. The experiment in this direction of the Education Committee of the London County Council will be watched with interest, and it is to be hoped will be imitated throughout the country.

Dr. TOEPLITZ, delegate of Municipal Board of Education, Breslau (xiii. Goethestr. 24/26): Redner betont den Standpunkt, welcher in Deutschland in dieser Frage eingenommen wird. Der Tuberkel-Bacillus ist in Deutschland entdeckt worden, und die Fürsorge für die Tuberkulose ist in stetem Fortschritt begriffen. Aber die Gefahr der Schulinfektion wird nicht ganz so schwer genommen wie hier. Die Infektion im Hause ist natürlich die häufigste; eine Ansteckung in der Schule ist möglich von Kind zu Kind, von Lehrer zu Schüler und endlich durch die im Schulraum befindlichen Infektionskeime. Immerhin ist die Gefahr weniger gross für *gesunde* Kinder, als für *kranke*, denen der längere Aufenthalt in der Klasse schädlich ist. Für diese muss besonders gesorgt werden (Waldschulen, Schulen in Tuberkulose-Kurorten).

SUR LA RARETÉ DE LA TUBERCULOSE CHEZ LES MEMBRES DU CORPS ENSEIGNANT DES ÉCOLES PRIMAIRES DE LA VILLE DE PARIS ET DU DÉPARTEMENT DE LA SEINE.

Par le DOCTEUR LOUIS GOURICHON (de Paris),
Ancien Président de la Société des Médecins-Inspecteurs des Écoles.

JUSQU'EN 1905, c'était un axiome courant de dire que la tuberculose était très fréquente chez les instituteurs et institutrices de Paris et des grandes villes. Elle atteignait, affirmait-on, le cinquième d'entre eux, et parfois même le tiers (Paul Brouardel, Samuel Bernheim, Bibet).

Mais heureusement, cette opinion, qui ne reposait sur aucune statistique ni sur aucune base sérieuse, se rapprochait beaucoup plus de la légende que de la réalité.

[1] C. Savoire, "L'œuvre de préservation de l'enfance contre la Tuberculose," *Monatsschrift der Internationalen Vereinigung gegen die Tuberculose*, Berlin, July, 1906.

Au congrès d'hygiène scolaire de 1905 d'abord, et au congrès international de la tuberculose tenu à Paris en octobre 1905, nous avons réagi contre cette erreur et démontré que la tuberculose dans le corps enseignant des écoles primaires publiques de la Ville de Paris et de la Seine était loin d'atteindre le chiffre de 20% qui avait été donné.

Depuis 1905 nos recherches n'ont fait que confirmer notre opinion. La ville de Paris, qui a fait tant de dépenses pour l'enseignement et l'hygiène et les œuvres scolaires (cantines, colonies de vacances, etc.), doit être relevée définitivement de l'accusation portée contre elle d'avoir dans ses écoles primaires des élèves et des membres du corps enseignant atteints en grand nombre de la tuberculose.

L'inspection médicale des écoles primaires parisiennes est pratiquée d'une façon régulière deux fois par mois. Mes collègues médecins-inspecteurs ainsi en rapport constant avec les instituteurs et institutrices ont été frappés depuis longtemps de la rareté relative de la tuberculose chez eux.

Ce personnel, ému des affirmations qui le présentaient comme une proie facile pour la tuberculose, créa, dans un mouvement admirable de solidarité, la Société Antituberculeuse de l'Enseignement primaire du département de la Seine de 16 octobre 1902.

Elle mit un dispensaire antituberculeux à la disposition de ses membres. Ceux-ci étaient au nombre de 2,215 le 19 novembre 1903. On compte seulement quatre-vingt-cinq cas de tuberculose, dont soixante-cinq fermés et vingt ouverts : *un seul décès*. Au 24 novembre 1904, 2,475 membres, quatre-vingt-cinq cas de tuberculose fermée et vingt-quatre tuberculoses ouvertes : *trois décès* seulement. En juin 1905, 2,862 membres, 1,024 consultants, et cinquante cas de tuberculose.

En 1906, 3,187 membres, 670 consultations pour l'appareil respiratoire, et " sur l'ensemble de mes consultants, très peu—à peine 5% (*cinq pour cent.*) sont des tuberculeux avérés " (Dr. Roblot, médecin du dispensaire).

Ainsi, un médecin du dispensaire antituberculeux lui-même se rapproche de la vérité en abandonnant en 1906 le chiffre de 20% donné par un autre médecin du dispensaire en 1903.

D'autre part, la Société de Secours Mutuels des Instituteurs Publics de la Seine, dont le nombre a varié de 185 à 265 en ces dix dernières années, n'a compté dans cette période que douze cas de tuberculose.

Enfin voici un renseignement récent et précis, de la plus haute importance et émanant d'une source officielle. Il m'a été fourni par Monsieur le Directeur de l'Enseignement Primaire de la Seine. Il a trait au nombre de maîtres et de maîtresses absents pour cause de tuberculose au 31 décembre des années 1905, 1906, 1907.

	Effectif des maîtres.	En congé pour tuberculose.	Effectif des maîtresses.	En congé pour tuberculose.
1905	2,883	14	4,270	18
1906	2,924	18	4,356	34
1907	2,959	25	4,514	43

Ainsi en 1905, sur 7,153 personnes il y a trente-deux tuberculoses avérées ; en 1906, sur 7,280 personnes il y a cinquante-deux tuberculoses ; au 28 juin 1907, sur 7,473 personnes il y a soixante-huit tuberculoses.

Cela ne fait pas tout-à-fait une pour cent. Ce chiffre est certainement insuffisant, car il y a des maîtres ou maîtresses qui continuent leur service

bien que malades. Aussi en le doublant ou en le triplant même, nous atteindrons un chiffre de 3% qui sera très près de la vérité.

Je dois ajouter que la Ville de Paris et le département de la Seine accordent libéralement aux membres de l'enseignement atteints de tuberculose pulmonaire l'intégralité de leur traitement pendant toute la durée de leur maladie et leur permettent de se soigner ainsi le plus tôt possible.

Les statistiques montrent que la mortalité des instituteurs est *inférieure* à la moyenne générale.

Ainsi en Angleterre d'après le supplément au cinquante-cinq rapport du Régistraire-général pour les années 1890, 1891, 1892, si la mortalité générale est 1,000, celle des instituteurs est 694; si la mortalité par tuberculose pulmonaire est 192, celle des instituteurs est 111.

A Paris nous ne connaissons pas la mortalité des instituteurs par tuberculose, mais nous voyons que chez eux dans la période de 1885 à 1889 la mortalité générale atteint seulement la moitié de la mortalité générale : 9·5 pour 1,000 au lieu de 19·5 pour 1,000, sur 1,000 vivants de vingt à soixante ans.

Il serait très intéressant de connaître quelle est la mortalité générale des instituteurs dans chacune des capitales et grandes villes d'Europe, et quelle est la mortalité spéciale par tuberculose pulmonaire. Peut-être nos collègues du Congrès international de Londres pourront-ils nous éclairer et nous donner des chiffres qui permettront la comparaison.

Pourquoi les maîtres et les maîtresses de l'enseignement primaire de Paris et de la Seine deviendraient-ils plus facilement tuberculeux que les autres corporations ?

Les causes tuberculisantes les plus puissantes sont chez eux, dit-on :—

1. Le *contact des tuberculeux.*—A Paris les recherches de M. le Professeur Grancher et de ses élèves MM. H. Méry et Guinon ont montré qu'il y avait seulement *un cas* de tuberculose ouverte pour 1,000 élèves. Les enfants ne crachant pas, ou peu, la contagion n'est donc pas à redouter pour les maîtres, et ceux-ci nous paraissent beaucoup plus dangereux pour les élèves.

2. *L'insalubrité et l'infection des locaux scolaires.*—S'il est certaines classes surpeuplées et mal ventilées, la généralité des écoles parisiennes est dans des conditions d'hygiène assez favorables. Lorsqu'il y a des cas de tuberculose ouverte constatés, soit chez les maîtres, soit chez les élèves, ils sont éliminés par les soins des médecins-inspecteurs, et les classes sont désinfectées aussi souvent que cela est nécessaire. Il en est de même lorsqu'il survient des cas de maladies contagieuses dans l'école, ou que celle-ci en temps de période électorale a servi de lieu de réunions publiques.

3. *L'insalubrité et la contamination du logement.*—A Paris et dans la Seine les directeurs d'école sont seuls logés et dans d'excellentes conditions ; les adjoints demeurent au dehors, et sont responsables du logis qu'ils choisissent.

4. *Le surmenage.*—Les maîtres n'ont que six heures de classe par jour en deux fois et en moyenne plus de 150 jours de congé par an. Il faut ajouter deux heures de travail destinées à la correction des devoirs et à la préparation des leçons. Cela fait huit heures par jour. Il serait à désirer que tous les surmenés ne le soient pas davantage.

De toutes les raisons invoquées, il n'en subsiste pas de sérieuses ni de convaincantes. S'il y a un danger de tuberculose à l'école, il provient plutôt du maître que de l'élève. Et nous pensons qu'il serait bon de

soumettre les maîtres, comme les élèves, à un examen médical à intervalles réguliers, et d'établir pour les uns et les autres une fiche sanitaire.

Conclusions.—1. A Paris et dans la Seine, la tuberculose est relativement rare chez les maîtres et maîtresses de l'enseignement primaire.

2. Quand elle se développe chez eux, elle prend toujours naissance, sauf des cas exceptionnels, en dehors de l'école.

3. Elle n'est pas une maladie professionnelle.

4. L'établissement d'une fiche sanitaire pour les maîtres et les élèves serait utile.

5. L'inspection médicale des écoles régulièrement effectuée est nécessaire pour assurer la salubrité des locaux et défendre maîtres et élèves contre les maladies contagieuses et notamment la tuberculose.

THE SCHOOLROOM AS A FACTOR IN TUBERCULOSIS.

By Wm. Oldright, M.A., M.D.,
Professor of Hygiene, University of Toronto.

In most civilised countries the State assumes it to be its duty to give the child "a fair start in life." In its labour laws it endeavours to protect him from injurious influences; in its truancy acts it tries to see that he is provided with a suitable mental equipment to start with, and by its department of education and otherwise it enacts regulations with the intention of maintaining a proper physical environment. If it compels the child to attend school, as it rightly does, it is all the more its duty to see that it does not thereby compel him to be in a place injurious to his health; and it appears to the writer that this Congress may be fairly looked to for a pronouncement as to whether the State is doing what it can, should, and would do in this respect, and which pronouncement may help in so doing. What has been said of the duty of the State and of our duty towards the child will apply still more strongly to our duty towards those who volunteer to act as the educators of the child, the teachers, inasmuch as they spend the whole of their professional life in the school condition in which the child spends a few years. This last fact of their spending their lives thus is of value in enabling us to judge of the sanitary effects on the child as well as on the teacher himself or herself, for it is the female teacher who appears to be most affected. We know how difficult it is to measure differentially the effect of the various factors of an insanitary condition—*e.g.*, the effect of impure air on the inhabitants of slum tenements, for we have here the effects of bad food, uncleanliness, alcoholism, and other injurious influences combined with impure air; but the teacher has the opportunity for enjoying the advantages of good food and habits and surroundings in his out-of-school life that others of his class do. If, then, the teacher's record on the death or sickness roll is markedly and generally different from that of other

persons in his or her social class, but in other occupations, it is fair to look to the school life for the cause.

This paper, then, will take up the consideration of the following questions :—

1. Do statistics show any marked difference between the prevalence of any disease amongst teachers and persons in other occupations ? And the disease to which our attention will be specially directed is pulmonary tuberculosis or consumption.
2. If so, what are the causes of this difference ?
3. How may they be remedied, and has there been any improvement ?
4. How can this Congress aid in bringing about the remedy or remedies ?

1. During the early investigations of the Provincial Board of Health of Ontario the writer was struck with the lamentably prominent position

TABLE 1.

RATIO of deaths from consumption in 100 deaths from all causes compiled from a table of deaths by occupations and causes of death in the Returns of the Registrar-General of Ontario for 1880, 1881, and 1883. The figures in parenthesis indicate rank in prevalence of consumption.

Occupations.	1880.	1881.	1883.
Stonecutters	—	(1) 44·4	(1) 65·0
Seamstresses	—	(2) 43·7	(5) 40·6
Milliners and Dressmakers	—	(3) 34·3	(11) 25·0
Teachers, female only	—	—	(3) 57·0
Teachers, male and female	(2) 29·1	(4) 32·3	(6) 29·9
Teachers, male only	—	—	(7) 28·5
Chemists and Druggists	—	(5) 31·2	(7) 28·5
Servants	(1) 33·3	(6) 26·6	(7) 28·5
Bankers	—	(7) 23·0	(15) 15·3
Printers	—	(8) 20·0	(2) 60·8
Barbers	—	(9) 18·1	(10) 27·2
Railway Employees	—	(10) 17·2	(12) 20·6
Shoemakers	(3) 20·4	(10) 17·2	(13) 20·5
Sailors	—	(10) 17·2	(17) 14·2
Blacksmiths	—	(12) 15·8	(16) 14·9
Butchers	—	(14) 15·0	(19) 7·4
Public Officials	—	(15) 11·6	(18) 11·5
Farmers	(4) 12·7	(16) 12·2	(14) 16·0
Lawyers	—	(17) 9·0	(11) 25·0
Physicians	—	(18) 7·7	(13) 18·5
Clergymen	—	(18) 7·7	(7) 28·5

(*a*) Sessional papers of the Legislature of Ontario, 1882–1883, Vol. XV., Part V., p. 57.
(*b*) Sessional papers of the Legislature of Ontario, 1882–1883, Vol. XV., Part V., pp. clxxiv–clxxv.
(*c*) Report of the Registrar-General of Ontario for 1883, pp. clxxxiv–cxcix.

held by the teachers of the Province in the death-list from consumption. That the average age of death of teachers was small was not to be wondered at, for many teachers leave the profession before reaching an advanced period of life, thus making the average age of the profession a young or small one ; but this should not make so great the proportion of deaths from consumption to the total deaths from all causes, as compared with the decedents from other occupations.

The comparison will be seen in Table 1, which I have compiled from the Returns of the Registrar-General of Ontario. So as not to take up too much of your time, I give only the ratios, and references to the papers of the published Report for those who wish to refer to them. Ratios for some of the occupations are given, amongst them of some which are generally supposed to be productive of consumption, such as stone-cutters and printers; some whose outdoor habits are as generally supposed to have the opposite effect, and some between the two extremes. I have arranged the occupations in the

TABLE 2.

NUMBER OF DEATHS FROM PHTHISIS IN CERTAIN OCCUPATIONS OUT OF 1,000 DEATHS FROM ALL CAUSES IN THE FOLLOWING CITIES:—

Occupation.	Baltimore.	Dist. of Columbia.	New York.	Brooklyn.	Philadelphia.	Boston.	Average of the ratio of the six cities (a) (decimals omitted).	Rank in order of mortality from Consumption
Clergymen . .	138·89	120·00	153·85	91·95	140·50	83·33	121	10
Lawyers . . .	119·40	125·00	102·49	236·11	139·13	96·39	136	8
Physicians and Surgeons . .	204·82	103·90	120·85	113·48	135·87	90·00	128	9
Saloon-Keepers, Bar-tenders, etc.	213·11	305·88	296·32	295·65	223·81	276·47	268	5
Barbers and Hair-dressers . . .	490·20	371·43	338·13	358·62	317·83	436·36	385	4
Printers and Pressmen	429·82	342·28	437·82	370·69	377·91	430·56	398	1
Policemen, Watchmen and Detectives. . . .	183·67	187·50	190·80	169·23	161·90	113·64	167	6
Stonecutters . .	432·43	333·33	398·51	423·53	261·90	496·83	391	3
Farmers, Planters and Overseers .	141·18	175·26	207·27	128·49	103·73	83·92	139	7
Female Teachers in Schools . .	452·38	395·35	272·06	336·96	441·86	477·27	396	2
Dressmakers and Seamstresses .	396·00	386·86	385·63	350·75	405·41	388·65	385	4

This table was compiled from Census Reports of deaths in several cities referred to for the six-year period ending 31st May, 1890, as published by the Census Bureau of the United States of America.

(*a*) This column was compiled by the writer by adding together the figures of the six cities and dividing by six. A more correct average regarding the teachers collectively of the six cities combined would be obtained by adding the deaths from all the cities together, and taking the average; but by this method we are able to get the rank in prominence of the six city units.

descending scale of the prevalence of deaths from consumption in 1881, and have indicated by figures in parenthesis (for convenience of comparison) the ranking for 1883, and for such few occupations as are given in a small table for 1880.

For some reason which I do not know the compilation of the causes of deaths by occupations was discontinued, but has been resumed, and I had hoped to receive the first of the new series in time for comparison in this paper.

Some may notice certain peculiarities as, for example, the discrepancies in deaths of printers in two different years, which are not relevant to this paper.

The writer being anxious to ascertain whether the teachers in other countries were exposed to the same dangers, wrote to the Census Bureau of the United States, and, through the courtesy of Dr. Billings, and later of Dr. Cressy L. Wilbur, is enabled to present statistics published in 1892 and 1902 respectively. In the volume of 1892 (for the year 1890) he found ready to his hand tables of ratios for six of the principal cities of the United States. These he has brought together in one table (Table 2), and has added two columns, in the first of which he has added the ratios of the several cities, and divided by six, so as to give in the last column an average of the position on the list of consumptives of the cities taken in units.

From the more recent returns for the year 1900 for the whole of the United States (published in 1902) I have given only the ratio of deaths from consumption of school-teachers as compared with the same figures for all occupations (*see* Table 3). These ratios I have compiled by adding together the total deaths from all sources in each table, first deaths from all causes, and then those from consumption, and taking their respective ratios. The tables will be found in vol. 3, part 1, of the Census Reports, as follows :—

TABLE 3.

From Table VIII.[1]—*Ratio of Deaths from Consumption in* 1,000 *deaths from all causes :—*

Of all males engaged in occupations.	154
And of all male teachers	184
From Table IX.[2]—	
Of all white males in (all) occupations	145
And of white male teachers	175
From Table XI.[3] :—	
Of all females in (all) occupations	215
Of all female teachers	256
From Table XII.[4] :—	
Of all white females in occupations	196
And of all white female teachers	251

The returns are both from Census enumerators and from registrations. It may occur to you that in adding up we have often the same deaths twice over, but as this has been done *pari passu* with all occupations and with teachers, (they being in the same table in each case), the *ratio* will not be affected.

It has been shown, then, from the actual official figures of the constituted authorities of Canada and the United States that the ratio of deaths from consumption amongst teachers has been largely above the average, and that although there has been a great improvement there is still great need for more in the interests of humanity and of this intelligent class in particular, and *pari passu* for the growing generation of children.

[1] pp. 154–189.
[2] pp. 192–207.
[3] pp. 210–236.
[4] pp. 240–243.

In regard to England and Wales it can also be shown by quotations from Dr. Tatham, in 1897, that "they [the school-teachers] suffer more heavily than do the clergy from pulmonary consumption." I have not succeeded, however, in obtaining statistics of teachers in what are called in Canada "public schools," dissociated from professors, tutors, etc., nor any statistics including female teachers.

The statement of the above conditions has caused surprise to some of our educationalists, and they have remarked that they have not noticed this prevalence of consumption. It may, therefore, be asked whether they have noticed a prevalence of any other painless chronic affection. The sufferer usually withdraws from their observation before symptoms diagnostic of consumption attract their attention. Whereas lameness and rheumatism are readily noticed, and with sore throat, headaches, dyspepsia, the sufferers remain with us, and return to our notice with repeated attacks.

2. Our second enquiry is as to the causes of this unsatisfactory showing. The late Dr. Parkes stated that for the due maintenance of health each individual of a mixed community required 3,000 cubic feet of air per hour, and that with natural ventilation the air could be changed about three times per hour, thus necessitating a cubic air space of 1,000 feet.

The barrack regulations, trying to work the actual up to the ideal, laid down for the hardy soldier-class a cubic space of 600 ft. with frequent change. Sanitarians in general have shared the views expressed by Drs. Parkes and De Chaumont. It has been thought that in the case of school children not much could be subtracted from these figures, for although their bodies are smaller, their growth and tissue changes are more rapid.

The Provincial Board of Health of Ontario, after due enquiry and consideration of existing and desirable conditions, and of what might be practicable, recommended a minimum air-space of 500 cubic feet per pupil, with at least five changes per hour, any space above 12 ft. from the floor-line not to be counted in calculating the air-space.

It might be supposed that if the various sanitarians above referred to were capable of forming a correct judgment, and believed practicable what they said, any considerable deviation from their recommendations would be attended by just such results as we have found in the answer, from actual conditions of lung disease, to the first enquiry of our paper.

From replies to circulars, as well as from individual observation and measurements, it has been found that one-half the amounts laid down would form a very generous statement of the average in actual existence. Replies to a circular sent by the Provincial Board of Health of Ontario to all the schools of the Province accorded with this statement.

Since that time there have been improvements in the amount of air-space, and to a more marked extent in artificial ventilation and more frequent changes of suitable air, which will account largely for the lessened death-rate from consumption which has been noted.

Whilst the foul condition of the air of our schools can be detected by the senses of one coming freshly in from the outside air, the teacher becomes so accustomed to its gradual deterioration as not to notice its offensiveness, and you will sometimes be told that it is all right.

When the beneficial action of the open air—pure air—treatment for

the cure of tuberculosis is so generally observed, it should also be readily admitted that impure, vitiated air has an equally baneful action in its production.

It is asserted by some that the inhalation of chalk dust at the blackboard is one of the causes of tuberculosis amongst teachers.

3. *Regarding the remedies* very little need be said to an audience of this character. To enter into the details of systems of ventilation would take up too much time; and the general principles are well known to those who make a careful study of the subject.

To my own students I have been in the habit of laying down four cardinal principles by which to test any system of ventilation. They are so self-evident that it may appear puerile to state them; and yet, like many other simple things, if we apply them as tests we shall find them very frequently violated :—

(1) That the air supplied should be pure and in sufficient quantity ;
(2) That it should be of a suitable temperature and degree of humidity when it reaches the inmates ;
(3) That it should be evenly distributed, so as to reach all of them ;
(4) That hot air is lighter than cold ; that the former will rise, the latter fall, unless other forces otherwise influence them.

I have found well-planned systems of ventilation going astray from ignorance, carelessness, or obstinacy on the part of caretakers and other persons in charge—for example, closing fresh air inlets to such an extent as to lessen the amount of incoming air below the required minimum, in order to save firing, or from assuming to decide on what is necessary. or sending used-up air back to the rooms. I have also seen a tendency because someone has blundered to abandon well-contrived systems, and go back entirely to the old window methods, excellent in their place, but unequal and insufficient in cold climates, often involving a violation of the second and third axioms which I have indicated.

There should be an inspection from time to time by the person who has installed the system, or some other competent authority. It should be seen to that the various rooms are receiving the regulation amount of air per head. This should be determined by the use of the air meter. It should also be made certain that it is coming from a pure source, and that it is properly moistened. Some accurate hygrometer should be used, and more attention paid to the thermometer. A maximum and minimum thermometer is a good check, and is not very costly. It is thought that much headache and catarrhal trouble are due originally to defective supply of moisture and improper temperature.

It should be ascertained that the incoming air circulates throughout the whole air-space before being drawn into the outlets. One simple method of finding this out is by carrying some slowly-burning material through the room during the absence of the pupils and observing the currents of smoke.

To do away with any effect the inhalation of chalk-dust may have, I have been in the habit of recommending that the chalk eraser or cloth be dampened, so that the dust will not fly about.

Medical inspection of schools should also be of benefit in lessening the amount of tuberculosis.

There has been an improvement in schools in some places, both in the instalment of better plants in new schools and alterations in old ones.

I have seen some unwholesome old rooms improved and economy thereby conserved, by adapting to them artificial systems of ventilation—fans or other motive power—forcing the air over heated coils and moistening contrivances; thermostatic regulation being added, leaving as little as possible to the caretaker's memory—making the system as automatic as possible with a due regard to economy.

One recent instance occurs to me in connection with one of our primary schools; here the crowd poison used to be quite perceptible. Recently I tested the supply of air, and found 2,600 ft. per head of pleasant, temperately-warmed air coming in overhead to a schoolroom with fifty pupils, and, after being drawn across the room, passing out at the floor-line near the point of entrance. Here was a case where an old school was utilised, notwithstanding the difficulties of re-arranging the heating and ventilation of an old building.

4. This Congress can give aid in stating whether or not it makes any difference whether the quantities of fresh air recommended by sanitarians in the past are supplied to teachers and scholars. I may best explain by stating that school trustees and other school authorities have often said when certain air-space and air change have been asked for, "Oh, these figures are impracticable." It is true that they are of old standing. Are they true of to-day? We had better have a modern pronouncement upon which we can proceed in our practical work. A statement from a representative body such as this, in the form of a resolution passed after due deliberation, should be of such weight and authority as to be of service.

At the proper time I trust that a suitable resolution, or series of resolutions, will be framed to help in conserving the lives of teachers and pupils in the school-room, and in lessening the influence of "the school-room as a factor in the production of tuberculosis."

SKIN DISEASES IN RELATION TO SCHOOL ATTENDANCE.

By T. Colcott Fox,

Physician for Diseases of the Skin to the Westminster Hospital, and Visiting Dermatologist to the Metropolitan Asylums Board Ringworm School.

When we survey the diseases of the skin which may be met with in children of the school age, we are struck with the small number which incapacitate the child from attendance at school, and we find ourselves mostly concerned with some localised parasitic contagious affections which temporarily excludes the child. These are, however, very common, and a great nuisance.

Let me briefly run through the skin diseases most commonly met with.

1. *Affections of congenital origin*, including "birth-marks" or nævi of various kinds, and the universally dry, harsh skin, known as ichthyosis, will not incapacitate the child, although some disfigurement may be disagreeable.

2. *Skin diseases due to local physical causes* include certain uncommon eruptions excited by the sun in specially predisposed children (*Prurigo æstivale* and *Hydroa æstivale*), which disfigure the face and hands especially, and are persistent through the summer months and intractable; and chilblains (*Perniones*), excited by the winter season, are sometimes severe and demand careful attention.

3. *Eruptions of constitutional origin* are often widespread, and may be associated with marked disturbance of the general health. The erythemata are probably of toxic origin, and may arise in rheumatic poisoning, so insidious in children. Purpura and urticaria are other members of this group, and the localised eruptions known as *Herpes febrilis* of the face, and *Herpes zoster*, or shingles.

4. *Eruptions of uncertain origin*, for the most part, are more numerous, but many will not prevent the child attending school in the absence of marked constitutional symptoms, and because they are not contagious, though they may be disfiguring. I may mention the common eczema and psoriasis, often chronic and relapsing, the rarer persistent prurigo and *Lichen urticatus*, so common in babies, but getting less frequent at older ages. Lastly, the bald, polished patches of the scalp, known as *Alopecia areata*, call for special mention, because it is disfiguring, of common occurrence, and long held in France to be contagious. The evidence of contagion is not at all strong, and I certify cases to be fit to attend school. If, as many think, *Alopecia areata* is of nerve origin, due to the general health or foul teeth or gums, the latter should be attended to, and the child should be guarded from overpressure.

5. *Parasitic diseases* concern us chiefly, as they are more or less contagious.

The animal parasitic diseases are pediculosis or lousiness, and scabies or the itch. Pediculosis of the scalp is very common, and may set up a very foul encrusted condition of the head, and abscesses, or may lead to suppuration of neighbouring lymphatic glands, or the inoculation of blisters and pustules about the rest of the body and limbs. In simple cases the removal of eggs (nits) should be insisted on, and directions for cure might be drawn up for the information of the parents. Another species of louse, on very rare occasions, locates itself in the eyebrows and eyelashes. The third species living in the vestments, and only going on the skin for food, is less common in children in this country than in adults. Fleas and bugs may greatly irritate certain susceptible children.

Scabies is also a highly generalised eruption, usually sparing the face, and by its irritation disturbs the night's rest, and is probably associated with some absorption of poison, which may occasionally affect the general health. The diagnosis requires a medical man, but the disease is rapidly and easily cured. These cases often escape recognition until other children are contaminated. The attention of teachers will probably be attracted by the scratching of the patient and the presence of eruption on the hands.

Vegetable parasites are, many of them, common. Tuberculosis of the skin in various phases may be occasionally met with, such as indolent, chronic abscesses, some special eruptions, such as *Acne scrofulosorum*, and the disfiguring and destructive condition, often affecting the face, called *Lupus vulgaris*. It is very desirable that the latter disease should be dealt with in its earliest stages.

The staphylococcus excites mattery heads or pustules and boils, and there is a group of eruptions of great frequency believed to be due to the streptococci. The latter includes the common vesico-pustular eruption known as *Impetigo contagiosa* and ecthyma. Ecthyma is found chiefly on the limbs, and *Impetigo contagiosa* especially attacks exposed regions as the face, and may be inoculated about the hands and nails or elsewhere. Sporadic cases always exist, but at times the disease is very prevalent, and occurs in several members of a family, or is rife in localities and institutions. It is important to recognise that, besides its passage from individual to individual directly or indirectly, it frequently originates from the vesico-pustular eruption of the scalp excited by lice, from chronic discharges from the nose, ears, eyes, and female genitals. Other phases of the streptococcic eruptions are characterised by diffuse excoriations behind the ears and at the corners of the mouth (*perleche* of the French). All these streptococcic eruptions are easily cured, and cleanliness goes a long way.

I must also refer here to a group of very common eruptions characterised mainly by little more or less reddened scaly patches, the nature of which is imperfectly understood, though they are probably parasitic. These patches are of several kinds; one known as *Pityriasis alba* is very common on children's faces, and another is frequently associated with dandruff or scurfiness of scalp, and seems to spread from the scalp to the eyebrows and eyelashes, and other parts of the face, and the neck, and may be extensively developed on the trunk and limbs. These scaly patches may closely simulate ringworm of glabrous parts, and sometimes can only be distinguished under the microscope. Ringed patches are very suggestive of ringworm.

Ringworm, caused by a fungus, is the most marked nuisance of all skin affections in children in this country because of its frequency, its contagiousness, and intractability when attacking the hairs on the scalp.

Favus, another similar disease, is luckily rare in London, and, when seen in English children, is probably derived from mice or rats. It has been largely introduced, however, into the East-end by immigrants.

From this review it is evident that the animal and vegetable parasitic diseases are those giving most trouble, because children suffering from them may readily contaminate other school children. The object in view must be to get the child cured as speedily as possible, that the exclusion from school shall be short. How is this object to be achieved? Simply calling the attention of the parents to the state of affairs does not necessarily secure the speediest possible cure, and it is evidently desirable to see further that the child is put in the way of proper treatment. But here difficulties arise. It is a common occurrence to direct the parents, without distinction, to take the children to the hospital; but it is obvious that the children should be treated either by a private medical practitioner, or at a provident dispensary or hospital, according to the financial status of the parents.

This leads me to conclude with a few remarks on the treatment of ringworm, which stands in a special position. Many children with extensive ringworm of the scalp will probably lose a year or more of school attendance before being cured by the older methods, and this is a serious matter. By the introduction of the X-ray method a speedy, certain cure can be obtained in a few weeks. In the interests of education it is eminently

desirable that ringworm of the scalp should be thus speedily cured, but at present the costly apparatus and the time of an operator can only be found at certain institutions, which can ill afford the expense of treating large numbers of cases unless special funds are forthcoming. It is inevitable that some arrangement should be made to deal with this important problem. Either the education authority must carry out this treatment themselves—a course to which there are objections—or make some arrangement with medical men or institutions equipped for the treatment. Great strides have already been made in clearing this pest from the schools of Paris. My colleague, Dr. Sale-Barker, at the Westminster Hospital and at the Ringworm School of the Metropolitan Asylums Board has already cured by this method something like 1000 cases, and this experience makes me sanguine that if the matter was systematically taken in hand the ringworm in London would, in a few years, be reduced to a minimum. In this connection it must be understood that most of the ringworm is exclusively human, as far as we know, and only a small proportion is derived from cats, dogs, birds and horses, and possibly mice.

Mr. W. J. Abel, B.A., Barrister-at-Law (Nottingham), in answer to a question respecting powers of education authorities to compel parents to take measures to secure medical or surgical treatment of their children suffering from skin or other diseases, stated that authorities have two main lines of action (concurrent or alternative), viz.—

1. To prosecute defaulting parent under Prevention of Cruelty to Children Act.

2. To take action in accordance with High Court decisions, which have well-established the position that an attendance is not an "attendance in law" unless the child in question is sent to school in a fit condition, and in accordance with reasonable regulations respecting school attendance.

Under this procedure the parent of a child suffering from infectious disease or from filth, and refusing promptly to take reasonable action to secure proper treatment, may be prosecuted, and must, upon satisfactory proof submitted, be convicted, even though such parent continues to send the affected child to school.

Upon the question whether parents can be compelled to submit their affected children to any given form of treatment (*e.g.*, X-Ray for ringworm), Mr. Abel stated that parents can only be compelled to adopt "some" reasonable treatment and not any given form.

Dr. Ralph P. Williams (Sheffield): In 39,000 children examined at Sheffield, 132 cases of ringworm were found in school, this, of course, not including those absent from the same disease. Cases when found are visited by women inspectors (who are trained nurses), and medical treatment, either private or hospital, urged.

Dr. J. M. Martin (Stroud, Gloucestershire) considered that one of the most important discussions of the section, as the conditions under consideration were so universal in country as well as town schools. In support of this he quoted results obtained at the first Medical Inspection of Schools in Gloucestershire in 1907: 90 per cent. of the girls had pediculosis of the scalp; many were excluded from attendance and treatment advised. The majority were soon cured, but a few were sent back time after time still infected. After prolonged absences the School Attendance Committee ordered prosecutions, and the parents were fined by the magistrates, even though the children had been refused re-admission. Medical inspection of schools will give us more certain information of existing conditions, which will lead to need for more preventive action, and, if present indications are correct, introduction of treatment. As they have heard this morning, treatment is already extensively undertaken in London and Croydon; but the question was asked, Where did the scope of preventive medicine end? Followed up logically, it must end in a universal State Medical Service.

THE MUNICIPAL CONTROL OF RINGWORM.

By H. Meredith Richards, M.D., and Winifred Thorp, M.B., D.P.H.,
Public Health Department, Croydon.

For many years past school attendance has been seriously affected in Croydon [1] by the prevalence of ringworm. In the absence of a complete system of medical supervision the exact extent of this prevalence cannot be stated, but during the years 1902 to 1906, no less than 3014 cases were brought to our knowledge by school teachers and attendance officers. This number only represents the more obvious cases of the disease. The prevalence may be further estimated by the fact that in March, 1906, no less than 180 children were absent from school at the same time on account of ringworm.

The disease, therefore, seriously interferes with school attendance, and not only diminishes the grant-earning capacity of the school but—what is more important—lessens the educational opportunities of children whose school-days are in any case all too short. The known frequency of this and other communicable diseases in elementary schools also detracts from the popularity of our public schools, and tempts the more self-respecting parents to send their children to private schools, where the educational facilities are inferior, but the risk of infection is, rightly or wrongly, thought to be less.

During the years 1902–1906 efforts were made to control the disease by visiting the homes of the children and persuading the parents to "get advice." This method was not a success. This was due to several causes. First of all, most parents were unable or unwilling to go to the expense of a heavy doctor's bill, such as would result from efficient medical treatment of the disease. They therefore usually went to the nearest chemist, who prescribed a box of ointment and a bottle of medicine "for the blood," or some such treatment, and no doctor was ever called in. In a few cases a doctor was consulted, but after one or two visits all medical treatment was given up and the advice of a neighbour taken. In a small minority of cases the child received systematic medical attention, but such cases were few and far between.

For these reasons ringworm cases hung on for months and often years, whereby the education of the children was suspended and habits of idleness formed. It was therefore obvious that more drastic measures must be adopted if the disease were to be checked. Two courses suggested themselves: (1) the segregation of the affected children in special schools where they could be treated by the local authority; (2) exclusion from school, accompanied by the treatment of the children at the public expense.

The former alternative was advocated by Dr. Colcott Fox at the seventh International Congress on Hygiene in London in 1901, but, though in many ways tempting, was not adapted to local conditions,

[1] Croydon has a population of 150,000, with about 22,000 children in attendance at its elementary schools.

chiefly because Croydon covers a very large area, and it would therefore be impracticable to gather the children into one school. It would also have been difficult to arrange for X-ray exposures at several centres.

What one may call the municipal dispensary system was therefore selected. The education committee, being unable to undertake treatment in the present state of the law, a resolution was sent to the Town Council asking that the hospital committee might undertake this work. To this assent was given in May, 1906, and treatment was actually undertaken about July 1st of the same year. The cases are therefore diagnosed by or under the direction of the medical officer to the education committee, and treated under the direction of the medical officer of health, who holds the dual office.

As the drug treatment of the more chronic cases of ringworm of the scalp is often unsatisfactory, arrangements were at once made to retain the services of an X-ray specialist.

The following is an account of the administration procedures now in force :—

1. Children suffering from ringworm are reported to the medical officer by the teachers and attendance officers.

2. These and any other cases coming to the knowledge of the medical officer are excluded from school until released by him.

3. The notification is sent to the health visitor for the district, who visits the home and informs the parents that the child must either be treated by their own doctor or be brought to the Town Hall at certain fixed times where free treatment can be obtained. At the same time the health visitor obtains specimens of the diseased hair in order that the diagnosis may be verified at the laboratory if necessary.

4. Parents who elect private treatment are thereupon notified to the attendance officers, who keep the children under observation until they are said to be free from inspection. When this point is reached a medical certificate must be sent to the medical officer or the child brought to the Town Hall for inspection. In either case the child is freed from quarantine and allowed to resume school. It is, however, wise subsequently to examine these children in school as relapses sometimes occur, and many medical men are hazy as to what constitutes freedom from infection. Here the assistance of the laboratory is invaluable.

5. Should the parents select municipal treatment, the child attends at the Town Hall, where it is seen by one of us, and either drugs or X-ray treatment is prescribed. In either case it is kept under observation by the health visitor for the district, and not allowed to return to school until, in our opinion, cured.

Treatment.—This is not the place to discuss therapeutics, and our account need only be brief. In the selection of drugs safety as well as efficiency must be respected. Ringworm of the body is, of course, always treated by drugs. A cure can easily be effected within seven days if the parents will take the requisite pains and carry out instructions. The children are frequently in school again at the end of a week or ten days. The average time is, however, from various causes, about two and a half weeks. For ringworm of the scalp we prescribe either X rays or drugs, being guided by the following considerations :—

Indications for X-ray Treatment.—1. Chronic cases with more than one patch.

2. Children whose parents are too busy or too neglectful to carry out drug treatment efficiently.

3. Children in the higher standards whose time is valuable, and who are working for scholarship examinations. Older children are often slow in responding to drug treatment, and therefore the X rays offer the more rapid cure.

Indications for Drug Treatment.—1. All recent cases. About two-thirds of all recent cases can be successfully cured by drug treatment within three months, often in much less than this. Even though about one-third of the cases are stubborn and slow in responding, it is well to begin by drugs, as their use will usually check further spread, except in very virulent cases, and thereafter the area for the application of X rays can be more accurately defined. The primary application of X rays to recent and rapidly spreading cases (as was attempted at first) frequently led to the necessity of a second application of the rays owing to the appearance of fresh patches, and consequently to considerable loss of time.

2. Cases in children under five years of age. Young children usually respond readily to drugs unless they have been long neglected. Also it is difficult for little children to sit still long enough for the application of X rays.

3. Cases where the parents object to X rays. The success of the drug method very largely depends on the energy with which the treatment is pursued. The patients should be seen frequently by the doctor, and the parents require constant keeping up to the mark. For this reason a very great deal of supervision is necessary if the treatment is to be rapidly successful. Really energetic parents can often get their children well in a month or six weeks.

A small proportion of children appear to relapse. This is particularly so in old standing cases which have apparently yielded to treatment. For this reason it is desirable to keep them under observation for three months after the cure is apparently complete.

We cannot enter into the matter in further detail, but it is important to indicate the probable time required for scalp cases.

During the last six months the average time taken in X-ray cases from the first exposure to the complete cure has been eight weeks. The shortest time being three weeks and the longest thirteen weeks. The time varies according to the number of exposures necessary. In addition to the time taken by the actual treatment there is usually time lost before the sittings can be arranged, and often also by the dilatoriness of the mothers, who do not bring up the children to the Town Hall when they are asked to do so. From these causes the shortest time any child has been absent from school has been nine weeks in the X-ray cases.

In the drug cases the total average time has been thirteen weeks, the shortest time any child has been absent from school being three weeks, and the longest thirty-seven weeks. The latter case was one which was more suited to the X rays than to drugs, but the child lived at a considerable distance from the Town Hall and could not be brought up for treatment.

It must be remembered that these two series of cases are not really comparable. Most of those for whom the X-ray treatment is advised are patients whom it would take months to cure by other means, and therefore the saving of time for the school children is enormous.

Comparing our results from drug treatment with the results got by private practitioners attending the elementary school children in Croydon, we find that, on an average, our cases take about half as long to cure as theirs do. We attribute this result to one or two causes. First, that we select our cases very carefully, and do not attempt to cure old-standing and chronic cases with drugs. These are passed on at once to the X-ray specialist. Secondly, that when the cases are under us we are able to exercise more pressure on the parents by means of visits from the health visitors, and it is we, and not the parents who judge how often a case requires to be seen by the doctor.

Possibility of Stamping out Ringworm.—The difficulty of stamping out ringworm in the schools is due to the fact that teachers report only the more obvious cases, which are easily diagnosed.

In every school there are a number of cases which are passed over or considered to be "only scurf," but which act as centres for the spread of infection to other scholars.

During the course of this year this fact has been demonstrated in several schools inspected by the health visitors, who have excluded many children from school who were thought by teachers and parents to be free from disease. This course ought to be pursued in all the schools in Croydon, but with the present staff it is impossible, and would necessitate the appointment of a school nurse. Could this be done and all the incipient and less obvious cases excluded and vigorously treated a very great diminution of ringworm cases would rapidly be effected, and in time we should only have to deal with localised outbreaks and sporadic cases.

THE RINGWORM QUESTION IN ELEMENTARY SCHOOLS.

By Phineas S. Abraham, M.A., M.D., B.Sc., F.R.C.S.I.,

Surgeon for Diseases of the Skin and Lecturer on Dermatology, P.G. College, West London Hospital; and Surgeon to the Hospital for Diseases of the Skin.

Since January this year some 195 cases of ringworm in children have come under my care at the West London Hospital, Hammersmith, and 69 at the Hospital for Diseases of the Skin, Blackfriars, making a total of 264. Eighty-nine of these had not recently been attending school, some being under school age, while others had been kept away from school for a considerable time before coming under my notice. The schools which the children had attended up to the time of coming to the hospital, or up to a short time before, are noted in 175 cases—125 at the West London Hospital, and 51 at the Hospital for Diseases of the Skin. Each of these hospitals serves a wide area. The Hammersmith cases come from forty-nine County Council and other elementary schools, and the Blackfriars from forty-one. Several of the individual schools have furnished within the period more than one case—for example,

Brackenbury Road school no less than eight, St. John's, Hammersmith, seven, St. Dunstan's six, Fulham Palace Road six, the British School, Brentford, six, and William Street, Queensmill Road, and Sacred Heart, five each; but the majority of the schools in the list are each responsible for only one or two of my cases.

It is, of course, obvious that the cases of ringworm from these ninety schools, which have come under my personal notice within the period of six months, represent but a very small proportion of the total number of the school children with ringworm. Many of these, no doubt, go to other hospitals and dispensaries, and many of them to the general practitioners of the neighbourhood. The figures which I am able to bring forward from my individual experience are, however, in themselves enough to show (1) how widely spread the disease still is among the metropolitan school children, and (2) what a large number of elementary schools now are, or have recently been, contaminated by ringworm. Many of the patients were really bad cases, the disease having existed and remained undetected by the school teachers or nurses for a considerable time previously.

It may, perhaps, be asked by those who are satisfied with the existing state of affairs, What proof is there that these children acquired the ringworm at the schools? I freely admit that some of them may have contracted it elsewhere; but there is no getting away from the fact that all of them had been attending at the schools, often for weeks or even months, without detection; and everyone conversant with the disease, and with the usual conditions of school life, will admit that they must all of them have been sources of infection for the other children. I have no doubt myself that, in the large majority of the cases, the mothers were quite right in saying that the ringworm had been "caught at school."

Many years ago I pointed out the inadequacy of the measures adopted by the authorities against the spread of ringworm and other contagious diseases of the skin in the elementary schools; but as far as I can judge from the cases that are still coming under my notice at the hospitals, there does not seem to have been much improvement since then, in spite of the fact that the Education Department of the London County Council has, to a certain extent, increased its medical staff. I further venture to say that it is not likely that we shall see much improvement until the medical inspection of school children becomes a *reality*; until periodical and frequent examinations of the children are carried out by medical men; and until all suspicious or doubtful cases are at once submitted to competent experts.

It may be easy enough for a nurse, or anyone else who has seen a few cases, to "spot" an ordinary case of ringworm, with its patches of stumps or broken hairs, but every dermatologist knows how frequently old-standing cases come before him which have been wrongly diagnosed—even by medical men—and mistaken for eczema, seborrhœa, etc., or are supposed to be "cured," because there is hair all over and only a little scurf to be seen, cases, indeed, the true nature of which can only be made certain by skilled microscopical or cultural investigation.

Not only do I contend it to be the duty of the authorities to adopt efficient measures—which is a matter quite feasible—for preventing, to a great extent at least, the contamination of healthy children who are forced to attend the elementary schools, but I further submit that the

responsibility of the treatment of an unfortunate child, who has presumably contracted a contagious skin disease at a Government school, should also be undertaken by the State.

It is, in my opinion, a cruel thing to force a child to go to a school where ringworm is known to exist, and then to saddle the poor parents with the expense and trouble of the subsequent treatment of the disease contracted at that school. It may be said that such children might be taken to the neighbouring hospitals for treatment, and so many of them are, but this also means trouble and expense, loss of time and wages for the family, as well as trouble and expense to the hospitals, to whose funds I am not aware that the county councils ever contribute..

It is no doubt mainly a question of expense. A few years ago, perhaps, ignorance, supineness and penury in such matters might all have been laid to the charge of the School Board ; but at the present day, and considering the enlightened interest the officers of the Education Department are taking in this International Congress, it is to be hoped that the lay authorities will come to realise the importance of the subject, and to see that economy ought to be practised in less essential matters than the prevention of disease.

A great deal that I have said in reference to ringworm in schools may equally be said in regard to pediculosis and some other objectionable and preventable contagious diseases of the skin. I once, in conjunction with Dr. Alder-Smith, examined the heads of a large number of children in two London Board schools. We found that only 2 per cent. of the girls' heads were free from pediculi or their ova. I do not think that this appalling proportion of infected heads is at the present time quite so great ; but I am sure that a very large number of the children now attending the metropolitan elementary schools are so infected, and that there is still strong probability of any clean child attending these schools soon becoming in a similar condition. Not only do they contract the pediculi by close association in the class-rooms, passages, and playgrounds, but also through their hats, which are hung in the ante-rooms one over the other and closely together.

NOTE.—Since this paper was read cases have been still coming before me which have been attending the County Council schools with the ringworm undetected by the school officials.

RINGWORM : ITS RELATION TO SCHOOL LIFE.,

By HARRY G. CRITCHLEY, M.A., M.D., D.P.H.

Medical Staff, London County Council (Education) ; Physician in Charge of the Electrical Department of the Greenwich (Miller) Hospital, etc.

FOR some years past the working of the Education Act has, and especially in London, been handicapped by the prevalence of ringworm among the children of school age. For the children themselves it is a question of the most serious import as it necessitates their exclusion from education, certainly for many months, and probably for two years. Apart from the consideration for the individual, the question is of considerable economic concern, for in some towns with a population of from 60,000 to

100,000 it costs the ratepayers from £150 to £300 a year by reason of the loss of "grant," while in large cities, and in London, where it is estimated that the absence from school by reason of ringworm is one-ninth of the total absence, the loss is enormous.

In this country the form of the disease most common, in fact occurring in ninety per cent. of the cases, is due to the small spored fungus, the *Microsporon Audouinii*, and is the type which is most intractable; its age period of incidence is commonly from the fifth to the tenth year; it is more uncommon in infancy, and seldom seen after the fourteenth or fifteenth year, in fact its selected age is that of school life. The fungus invades the hair follicles of the scalp, and there the spores proliferate freely, being found four millimetres below the surface, and herein lie the difficulties in the treatment, because remedies of a medicinal nature cannot penetrate far enough, and when by their use a cure seems to the untrained eye to be more or less effected, one has only to wait until the hair has had time to grow about two millimetres, when the disease is again apparent on the surface. Another form, the *Tricophyton megalosporon*, is characterised by large spores and mycelium, and is the type more commonly existent among children in Germany; it is much more readily amenable to treatment, and this may serve to explain the advantage which our Teutonic colleagues possess in dealing with ringworm as it affects school life.

Whether the question be regarded from the educationist's point of view, or from an economic one, or from that of the public health, any agent which can cut short the disease should be welcomed by those to whom is entrusted the care of education, or of the public health, or the interests of the ratepayers. We have such an agent in electricity, by X rays for the most part, and by cataphoresis to a limited extent; the treatment by X rays is cleanly and painless, rapid and certain.

The Croydon Education Committee has adopted this method of treatment, and success has attended the experiment, for the prevalence of ringworm in the Croydon elementary schools had resulted in a loss of grant to the extent of £300 a year, and when it was contemplated to adopt the X-ray treatment, it was estimated that an expenditure of £250, spread over three years, might result in a profit of £600 by the end of four years, for it must be remembered that every case cured limits the source of infection. At the end of six months I was able to report that every application of treatment had been successful. Children who had been under utterly ineffectual treatment for two years, eighty-six weeks, and sixty weeks, were all free from infection and readmitted to school in five weeks from the date of application of X rays.

The Metropolitan Asylums Board has, or used to have, two ringworm schools, one with 180 beds and the other with 430 beds; these used to be full to overflowing. The X-ray treatment was commenced in May, 1905, and at the end of 1906 one of these was closed as a ringworm school, and there were about 100 vacant beds at the other school; and I am informed that the huge Paris ringworm school, the École Lailler, will soon cease to be required for its present purposes by reason of the success which has attended the electrical treatment of ringworm.

I may add that the system of treatment costs really very little, though some people are led into unnecessary expense by the electrical instrument makers.

It so happens that the duties and interests of the local sanitary authorities and of education committees are interdependent, and it is to be hoped that before long all public bodies having the care of the public health generally, or of children specially, will adopt the Sabouraud-Noiré system of treatment to mitigate the scourge of ringworm, for, in the home counties at any rate, we cannot expect to eradicate it so long as the London elementary schools remain such an extensive and fertile field of infection.

THE INFLUENCE OF THE SCHOOL ON THE IMPAIRING OF THE HEALTH OF SCHOOL CHILDREN.

By V. HUTTEL, M.U.DR.,
School Physician of the City of Prague.

IT is commonly the near-sightedness and the distorted spines which serve to show that the attendance at schools is a means of deteriorating the health of children, but the question whether there are yet other maladies caused by attending schools, and what are the ways and the extent of their baneful influence, was answered only in recent times, although it is of the greatest importance to all those who care for the physical health and development of our younger generation.

There is now no difference of opinion as to the fact that the schools have a great influence, not only as to the development and the growth of children, but also as to their health, and consequently the modern hygiene demands with full right before all a faultless construction of school-houses, a correct furniture to schoolrooms, and the greatest care for their constant and perfect cleanliness. The conviction that these demands are just is, happily, spreading among the ruling classes, and one of its consequences is the institution of hygienical advisers or school-physicians for the several schools. The mission of these physicians is to protect the health of the children and to denounce everything that might imperil it. But their advice will be always of a purely theoretical value if the respective authorities will not act according to it without delay, and what Professor Cohn demanded in 1887 at the Philosophical Congress at Danzig, that the school-physicians are not only to look after nuisances and defaults, but also to care for their immediate removal with the authority of a dictator, regardless of anybody's opposition, will remain an ideal yet for a long time to come.

I must mention that it is not necessary to consider every school as a great peril to the growing youth, but equally as it would be without reason to frighten the public with every school, so I think it necessary to say that a badly-constructed and furnished school really does imperil the children's health, and that it is necessary to demand with all energy an immediate improvement from the respective authorities.

We can show in two ways that the school has an adverse influence on the health of the pupils, directly by pointing to certain maladies whose intensity is in a direct proportion to the duration of the school attendance, and indirectly by indicating the different faults we can find in the schools, and their atmosphere, imperilling, without doubt, the health of the children.

I.

In every country the school-physicians enumerate in their annual reports certain maladies peculiar to children, which either originate directly in the schools or increase through the attendance of schools, and the same can be found also in the reports of the school-physicians in Bohemia.

The material for our statistics is not yet of great quantity. There is the first annual report of the service of the school-physicians of Prague in 1904–5; besides this the report of the school-physicians of Mlada Boleslav, referring also exclusively to the first year of service, and from an earlier period: "Result of the medical examination of the pupils of the communal school for boys at St. Peter's and St. Nicholas' performed by Chudoba, Lokay and Mrárek, M.D.D.," forming an annexe to the sixth annual report of the Board of Health of Prague, 1887.

The results of these scanty reports of ours are in perfect conformity with the great statistical works. We learn from them that the *nutrition* of the pupils in the higher classes suffers by far more than that of the children in the first class, which is proved to evidence by the quality of the teeth, as this is in strict connection with the nutrition of the entire body. The older the children the oftener we find bad teeth.

The influence of the school reveals itself in the most striking way by a phenomenon, which is to be met everywhere by the *near-sightedness* (myopia). In every school we can see that the higher the class the more near-sighted children will be found, and also that the malady is of a higher degree. The hearing does not suffer as much in the school as the sight; on the contrary, it seems that defaults in the hearing are more rare in higher classes.

Also skin diseases are common enough; but here the school is responsible only as far as it causes a constant and close intercourse of the children. Pediculosis stands in front of all others.

The most astonishing is the steady increase of the diseases of the vertebral column among elder children, of whom the girls suffer more than the boys. It cannot be denied that the bad construction of the forms is responsible in a high degree, but nevertheless it must be admitted that there are also other causes beyond the influence of the school which augment this evil. Before all there may be an inherent disposition, founded either in a bad construction of the spinal column (after a previous rachitis or other maladies), or in a bad or assymetric development of the dorsal muscles.

Nervous diseases are to be mentioned next, as the school has an unquestionable influence. Headaches, vomiting, insomnia, frightening dreams, and several other disturbances of the nerves, are more frequent in higher classes. They are caused, without doubt, by mental overwork, in consequence of an excess and wrong distribution of the material to be learned by the pupils, and by a bad heating and insufficient ventilation

of the schoolrooms, which affect in a higher degree persons sitting for hours, impairing the circulation of the blood and damaging other organs, so that frequent catarrhs of the throat, bronchitis, angina, etc., are consequences of such a bad arrangement.

The most important and the most frequent drawback of schools is that they afford a very favourable opportunity to the spreading of *infectious diseases*. The intercourse of the children is nowhere so near and intimate as in the schools, and it is, therefore, a matter of course that the germs of infectious diseases are so easily transferred from one child to another, from one family to a neighbouring one. Among the infectious maladies it is *tuberculosis* which causes considerable ravages among the children. Although it is true that it is very difficult to cope with other infectious children's diseases in schools, and that even enhanced efforts do not succeed always in confining their spreading, we can with full right accuse the bad and unhygienic arrangements of the schools of being the means of the spreading of the tuberculosis; and yet it is an easy thing to confine it to the narrowest limits by correct and convenient dispositions.

II.

In the foregoing we have discussed those diseases which appear most frequently in the schools. We will now in the following lines indicate some influences which are often the causes of these maladies.

The influence of the school upon the children is to be considered as a consequence of three factors :—

1. The children themselves.
2. The school and its arrangement.
3. The material to be taught and its distribution.

1. It is evident that children labouring under some inherited disease, or inclining to certain disturbances of the body or the mind, will get any malady, and suffer more harm more easily not only in higher classes but already in the first.

The very entering a schoolroom is certainly an important change in the child's life. As yet it was accustomed to live without any restraint, to play at its will, to rise only after having awakened by itself; but now, from the beginning of the first term, its liberty is restrained; others awaken it earlier, it is obliged to dress and to breakfast in hurry. It enters the school for the first time to find there everything new, unwonted even the room itself, and the numerous company of strange fellows. It is obliged to sit quietly in the school and to be attentive. All these new circumstances cause a great exertion of the mind and a certain amount of excitedness is the consequence. Some weeks pass always before the child gets accustomed to its new surroundings. Meantime it loses its appetite, grows pale, has often headache, and suffers from constipation. After some time the child gets accustomed to the new life and regains its former health; but some of the children inclining to nervous affections cannot for a long time recover from their uneasiness. It is, therefore, the very first class which has so great an influence upon the children entering the school. This influence is the greater the higher the class, and especially on children of a weak constitution or an innate disease. Such children ought not to be sent to school before gaining a sufficient

degree of bodily strength and mental ripeness. The law admits children to school as soon as they begin their seventh year, but the opinion of the physician and pedagogue ought to be decisive in this question. It happens very often that a child of more than six years is unable to attend the school on account of its weakness, caused by preceding maladies, whereas, on the contrary, other children can be sufficiently developed in body and mind before reaching the sixth year. The parents ought to tell the headmaster whether the child entering the school has any infirmity, whether it is too weak, although old enough, whether his sight or hearing suffer, whether it has a defect of the heart, a rupture, etc.; the headmaster ought to take notice of it and consult the school-physician, that the child might be saved from further possible consequences of the disease when frequenting the school. The weakening of the activity of the mind, which we call inattentiveness, is often caused by defects of the body which have not been perceived. Diseases of the eyes, which have impaired the clearness of the sight, and diseases of the ears, with a consequent dullness and thickness of hearing, are very often the cause of inattention. Such children at first endeavour to make their defects good by a strained activity of the mind, and overstrain their eyes and ears, but failing even in these efforts they become shy, relaxed, lose every interest, they grow indifferent. Several diseases of the nose have a similar influence on the activity of the mind. We know that a mere cold oppresses the head; what to say, then, of a chronic rhinitis, of different processes of the rachitis, of polypus or other neoplasms. Children affected with such diseases are lax, dull, slow, and as their features lack the usual expressiveness, they are often considered to be idiots incapable of any development of their mental faculties. So they become stunted, not through their own fault, but only because their original disease has not been recognised at the right time. In such cases the school often can set matters right by a judicious method of teaching, by a proper placing of the pupils in the front forms, and by a kind advice as to the possibility of a successful medical treatment.

2. The second factor of great importance to the health of the children are the schools themselves and their arrangement and outfit. It was already the great Komensky (Johannes Amos Comenius, 1592–1671) who insisted upon a sound hygiene in the schools and demanded spacious airy rooms, playgrounds in the vicinity of the schoolhouses where the pupils ought to perform gymnastics or other plays during the intervals of their lessons. We see that Comenius two hundred and fifty years ago did not demand much less than we are demanding in our times.

Before all, the schoolrooms must be well lighted; insufficient or bad light in the schoolrooms impairs the sight of the pupils very much, whether they are reading and writing in their near books or whether they are to look at the far blackboard. Here often another harmful circumstance may enter, that the board is wrong, that it is glossy, and demands a greater strain of the eyes. A considerable increase of myopia in the higher classes must be attributed in a great measure only to this overstraining of the eyes.

Next to the light *the air* is the most important agent in the schoolroom. In a class, where so many children are crowded, the air becomes foul by the mere breathing of the children themselves, and to this we must add the several other exhalations of the pupils, their often unclean

bodies, of the garments, the food they bring to the school, etc.! The inevitable consequence of the breathing of the foul air in the room are headaches, uneasiness, vomiting, and even fainting fits.

The only remedy is a thorough ventilation, but a good care must be also taken for a *convenient temperature* of the air. The air must be not over-heated nor too cold nor too dry if a whole series of maladies will be avoided as general exhaustions, catarrhs of the throats or lungs, headaches, or even maladies of a more serious character.

I do not intend to discuss in length the question of the *purity of the air and the general cleanliness of the school.* Everybody knows that the dust, which contains whole masses of infectious germs, if whirled up, can be the means of spreading very serious maladies and, nevertheless, how numerous are the vain demands and the unheeded hints for improvements. There exist surely many instructions to be observed by the servants, how to keep the rooms clean and in order, but even these are by far insufficient, although they may be strictly acted upon. We may, for this purpose, compare the school with a household, however modest but well cared for, where the dust is daily wiped off with the utmost solicitude from the furniture as well as from the floor. What a great contrast offers the school where the cleanliness is not so rigidly observed, although dust and mud are brought into the rooms we might say wholesale by the crowds of children! Here, certainly, the complaint, that the school has a bad influence in imperilling the health of the children is amply justified.

Of great importance in a hygienical as well as in a pedagogical respect is a *correct placing* of the children in the class according to their growth and defects so that the shortsighted and the hard of hearing may take their seats in the front forms. That is the least that can be demanded from the respective authorities, which by such dispositions will avoid to make the pupils indifferent and sulky.

Reading involves also a peril to the sight by itself, and therefore great care is to be taken what kind of books are given to the children to read from. Not only the paper but also the printing must be as convenient to the sight as possible, that the eyes may not be overstrained. Books printed in small and close types, now so common in the so-called popular editions, must be absolutely avoided.

It is not less important to be very careful that the children may sit correctly in the classes. A well-constructed seat is one of the first and important requisites demanded by the hygiene of the school. It is almost a crime to force a child to sit all the long time of the lessons in an inconvenient form, where the spine is distorted and the respiratory organs suffer because the chest cannot sufficiently dilate itself when breathing. We demand a correct sitting especially at writing and needlework, because the children here are most liable to be injured either by distorting their spines when sitting wrongly or by overstraining their eyes when holding the books or sewing, etc., too closely to their eyes.

3. The third, but not the least important, factor, which eventually can impair the health of the pupils is the *whole material of instruction and its distribution.* A wrong distribution spoils not only the body but also the mind. Those who make the plans for the instruction are very well aware of its importance and endeavour to fulfil the demands of the modern hygiene. In compassing the present plans of instruction

with those of former years, we must admit, that there is a considerable progress, and that the learning has been made by far easier to the pupils; but, nevertheless, yet much can and must be improved in this respect.

By "material of instruction" we mean the whole process of teaching, viz., the matter to be taught and its distribution, the method of teaching, the number of lessons, their plan and order, the tasks given to the pupils to be done in the school or at home, etc. To arrange these matters certainly pertains to the competence and right of the pedagogues, but it is their duty to arrange everything in such a manner that the mental ability of the pupils may not be overstrained, and at the same time that a sufficient leisure may be accorded to them in convenient intervals for their recreation either by some play or even by a moderate romping.

It is just the youngest pupils in the lowest classes who deserve the greatest care. Here, certainly, two lessons a day, at least at the beginning, would be quite sufficient. Thus the mind of the children would get accustomed by degrees to work and would slowly accommodate itself to higher demands awaiting them in the higher classes. It would also serve this purpose, to begin the lessons of pupils later by an hour; it is certainly too early to begin the lessons of these mites at eight in the morning, as it is done now. The children must rise one and a half or even two hours before school-time to get ready for the school. If they do not do so they are hurried up, they dress carelessly, swallow up their breakfast in haste, or run to the school without their breakfast lest they come too late. They arrive at the school out of breath, excited, and are unable to be attentive during their lessons. And to begin the lessons at eight in the morning is especially annoying in winter, when the morning fogs and the chilly weather imperil the health of the delicate children, while the schoolrooms must be lighted artificially and often are not sufficiently warmed.

We do not find the effects of exhaustion and overstraining so often in the elementary as in the middle schools, nor in so high degrees. Only headaches, nervousness, sleeplessness, or disturbed sleep with frightening dreams are often symptoms of overstraining, especially when children are of delicate health and nervous disposition. But, nevertheless, it is necessary also in the lower schools to grant some leisure between the several lessons. It is impossible to decree a general rule for the duration of such intervals; the teachers themselves must determine it, according to the various circumstances, and especially in regard of the time necessary for a sufficient ventilation of the rooms. It is also to be considered how many lessons and tasks are to be given to the pupils to be done at home, for this continuation of the school work implies further mental exertions of the children and quiet sitting at home and may consequently impair their health by overstraining their faculties.

The best means for the recreation of the mind and the best counterpoise to the long sitting in the schools are in winter gymnastics in spacious and conveniently-built halls, and in summer gymnastics or plays in the open air and bathing in the river.

In the foregoing we have taken notice of all the common ways by which the school can influence the health of the children. The perils which menace the health of pupils in the schools are certainly numerous, but none of them is of such a character as not to be avoided entirely

or to be considerably reduced in its efficiency, whenever there is the goodwill to do so. And to do this is the duty of the school-physicians—there is the importance of this institution, and no school ought to be devoid of it.

It is the duty of the pedagogue to act in accordance with the physician, and, if the benevolence of the school authorities supports them, their united efforts must succeed in making the school what it ought to be, a real blessing to the young generations, where they can prosper in body and soul.

To conclude, we may be allowed to give a summary of the demands contained in the preceding observations :—

1. Only a healthy child is to be sent to school. Children of weak health or labouring under any disease are not allowed to enter before the declaration of the school-physician, that their health has sufficiently improved.

2. The parents are obliged to inform the headmaster of any possible defects of their children, as short-sightedness, thickness of hearing, ruptures, heart-diseases, etc., in order that the pupils may be placed according to their requirements or granted the necessary ease.

3. The school physician is to be consulted as to the plans for the construction of new schoolhouses, whether they answer all sanitary requisites.

4. Perfect cleanliness is to be maintained in the whole schoolhouse at any season of the year, even at greater financial expense.

5. The outfit as forms, blackboards, gymnastic apparatus, books, etc., must be in accordance with the demands of hygiene.

6. The pupils must be earnestly taught to sit correctly when writing, designing, or at handiwork.

7. The lessons must be so arranged as not to cause an overstraining of the brains ; the pupils must be allowed a sufficient leisure between the several lessons ; home lessons and tasks are to be limited to the strictest necessity.

8. The lessons in the first class must not begin before nine o'clock ; in the first semester of this class not more than two lessons a day are to be allowed.

9. To each school a physician is to be appointed as guardian of the pupil's health. He must be authorised to demand that his advice and hints always be obeyed, and that any deficiencies he might find in the school be removed as soon as possible, or at least rendered less noxious.

LA SURVEILLANCE DE LA PEAU ET DU CUIR CHEVELU CHEZ LES ÉCOLIERS.

Par le Dr. René Martial,
Chef de clinique dermatologique.[1]

Je dois le dire dès l'abord : loin de moi la pensée machiavélique de vouloir faire créer indirectement une inspection dermatologique des écoles !

Je comprendrais mal des revendications hygiéniques et scolaires qui n'auraient d'autre but que de multiplier à l'infini des postes de médecin para-officiels, voire même officiels—avec traitement à l'appui bien entendu. La multiplicité des specialités rendrait d'ailleurs—du moins je l'espère, car il est prudent d'être dubitatif en l'espèce—rendrait d'ailleurs, dis-je, la chose impossible.

Imaginez une école où passeraient successivement : le médecin-inspecteur pour la médecine générale, puis le dentiste, puis le laryngologiste, puis l'oculiste, puis le dermatologiste, puis le syphiligraphe, puis le tuberculigraphe, puis l'orthopédiste, etc. Ce ne serait plus une école, mais une véritable clinique. Les élèves n'apprendraient pas grand'chose, mais leur carnet sanitaire—si carnet sanitaire il y avait—serait bientôt chargé de toutes espèces de diagnostics, variables suivant les modes médicales du moment et le sujet préféré des études de chaque médecin.

Au sortir de l'école, l'élève aurait déjà—sans même jamais avoir présenté aucune maladie déclarée—un casier sanitaire très chargé. Le tuberculigraphe lui aurait trouvé une omoplate plus saillante que l'autre, le laryngologiste des amygdales à abler, le dermatologiste des nævi, des pellicules, le syphiligraphe la triade d'Hutchinson, etc. etc. Ainsi pourvu de tares officielles, il resterait au futur bachelier simplement à se suicider, tout en maudissant ses parents de l'avoir mis au monde.

Non, je n'ai pas une telle compréhension du sujet et je ne conclurai pas en demandant la création d'un corps de médecins-inspecteurs de dermatologie pour les écoliers.

Cependant la surveillance de la peau et du cuir chevelu serait une bonne chose pour nombre d'écoliers.

En France, le Dr. Sabouraud et les médecins attachés à son laboratoire surveillent et traitent les cas de teigne scolaire qu'ils dépistent. Ce service pourra un jour être modifié : (1) quand il n'y aura plus que les cas sporadiques et rares de teigne, (2) quand les praticiens sauront—non pas faire un diagnostic dermatologique—mais simplement examiner les enfants au point de vue dermatologique. Du même coup, leur examen ne se bornera pas à la teigne ou à la pelade, mais s'étendra à tout le revêtement cutané.

Ce qui est nécessaire, c'est que le médecin nommé inspecteur des écoles sache regarder un cuir chevelu et la peau d'un élève. Je ne lui demanderai ni diagnostic ni traitement : le médecin de médecine générale ne peut pas connaître toutes les spécialités, sa science ne peut pas être

[1] A l'Etablissement dermatologique de M. le Dr. Leredde.

universelle. Quel est donc celui d'entre nous qui serait assez osé aujourd'hui pour prétendre tout savoir en médecine ?

Mais étant donné un écolier et un médecin-inspecteur, il faut que celui-ci sache regarder un cuir chevelu " à rebrousse-poils," voir s'il y existe : des squames, des croûtes, des plaques d'alopécie, des parasites ou même une inflammation localisée ou étendue ; il faut, qu'ayant fait déshabiller l'enfant, il sache voir sur son corps des traces de grattage, des vésicules, des pustules, des papules, des macules, des squames, des croûtes, de l'érythème, des parasites.

Cela se résume d'un mot : voir si le sujet ne présente rien de suspect.

Si oui, le médecin rédigera un bulletin que le maître d'école remettra aux parents et sur lequel il écrira simplement ceci :

" Il est nécessaire que les parents conduisent cet enfant à la consultation d'un médecin des maladies de la peau qui se chargera du traitement et donnera un certificat de non-contagiosité.

" En cas de contagiosité, avertir le directeur de l'école (lequel avertirait à son tour le médecin-inspecteur).

" *N.B.—Le libre choix du médecin spécialiste demeure le droit strict des parents.*"

On sait, en effet, qu'en France cette question du libre choix est fort importante et à l'ordre du jour des questions professionnelles. On devine facilement pourquoi il doit en être ainsi.

Quand l'enfant contagieux serait guéri, il retournerait à l'école avec un certificat de guérison du dermatologiste comme cela se fait déjà maintenant pour la teigne.

Ainsi comprené-je la surveillance de la peau et du cuir chevelu de l'écolier, surveillance qui doit ménager à la fois les intérêts du petit malade, de la collectivité et des médecins. De cette manière, point n'est besoin d'instituer une nouvelle inspection spéciale, ni une paperasserie encombrante, inutile, qui deviendra peut-être même gênante plus tard pour l'enfant lorsqu'il sera devenu un homme.

Ni paperasse, ni police médicale—un conseil impératif seulement.

TRACHOMA IN LONDON SCHOOLS.

By F. A. C. Tyrrell, M.B., B.C. (Cantab.), F.R.C.S.

Epidemics of trachoma are by no means out of the question in this country. In 1874, owing to the presence of ophthalmia in the London poor-law schools, an inspection of these schools was made by an eminent oculist at the request of the Local Government Board. In his report he stated that out of 8798 children examined, 1300 had active ophthalmia, and of these 42 per cent. were " bad granular lid " cases. It was generally admitted that numbers of children lost their sight as a result of ophthalmia in the poor-law schools in the early seventies.

Unfortunately the present Education Act does not allow the authorities to deal with trachoma in as satisfactory a manner as could be desired. Having prohibited the child from attending school, the matter

is more or less out of the hands of the medical department, and unless the parents apply to the relieving officer, and are considered sufficiently deserving of poor-law relief, the child becomes a casual attendant at one of the eye departments of a general hospital or special ophthalmic institution, where probably little interest is taken in the case.

The poor-law authorities, however, have taken the matter in hand, and provided two special schools, eighteen miles out of London, where trachomatous children can be treated in the most favourable environment and by the most up-to-date methods, without interfering with their education.

In 1903, the first year in which these schools were opened for the reception of children, a comparison of the number of admissions from the various districts from which trachoma cases were received shows very markedly how very large a proportion were admitted from what is commonly called the Pool of London, *i.e.* the area which, by its close proximity to the docks, would be the one in which trachoma would be most likely to become endemic owing to recent arrivals at the port.

The total of trachomas received in that year were 292, and of these over 200 came from the East-end parishes. I quote the figures from the Metropolitan Asylums Board Report for 1903, in which Mr. Collins, the ophthalmic surgeon to the Board, remarks: "The difference in the source of the cases may possibly be explained by there being in the districts about the docks many people arriving from the countries where the disease is rife, some of whom, being contaminated, import infection into this country." I cannot say that of later years the figures have borne out these conclusions in the same striking manner, but there is always a large preponderance of trachoma in the East-end parishes, whereas in the West-end and outlying districts the numbers can be almost counted on the fingers.

Since the opening of the schools the number of trachomas received have been steadily reduced; non-trachoma admissions have as steadily increased, due probably to chronic cases being weeded out of the poor-law schools.

The number of trachoma admissions are as follows:—1903, 292; 1904, 200; 1905, 141; 1906, 115.

Incipient cases of trachoma are (as all who have had to do with this disease will agree) extremely difficult to differentiate from other forms of ophthalmia, more especially follicular conjunctivitis. But whereas the latter is a disease of comparatively short duration, the former is most extraordinarily intractable; the average period of its duration, from the commencement of a strict course of treatment under the most favourable conditions, being somewhere about eighteen months.

The children in these special schools are drafted from all parts of the metropolis, and arrive in all stages of the disease, from those showing a few minute follicles on the tarsal conjunctiva, to advanced cases with extensive scarring of the lids and complete pannus.

It is remarkable how, from first to last, trachoma, in contradistinction to other forms of ophthalmia, occasionally remains monocular; but when both eyes are affected (in the early stages especially) a great difficulty is experienced in differentiation, so much so that some authorities go so far as to classify trachoma and follicular conjunctivitis as one and the same disease.

During a recent visit to some of the New York schools I gathered from the medical inspectors that all cases showing follicular enlargement on the palpebral conjunctiva were classified as trachomatous cases.

In the New York trachoma hospitals and dispensaries, established by the Department of Health in 1902, the number of children treated for this disease during the years 1903–05 reached the enormous total of 36,000, which leads one to suppose that either trachoma is very much more rife in that city than it is in London, or that a large number of the cases are what we should classify as simple follicular conjunctivitis.

The serious nature of true trachoma as affecting the sight and future prospects of the children compels us to do all in our power to prevent its spread ; and if we included other forms of ophthalmia in the same category the complete isolation of all these cases would entail too heavy a burden upon the authorities to be justifiable. It is therefore imperative that medical inspectors should have a practical experience of the disease, in order that the cases should be diagnosed in the early stages, when the discharge from the conjunctiva is most profuse, and consequently the malady most contagious.

To recognise the advanced stage of trachoma with so-called sago-grain granulation is not difficult (having once seen a typical case), yet it is surprising how frequently such cases go unrecognised for years in regularly inspected schools, unless there is some associated pannus. This may be due to the fact that many school inspectors do not systematically evert the upper lids of children with eye troubles.

But a much larger number are missed when in the early stages of the disease, for it requires a keen observer to detect its first appearance.

The early trachomatous follicles are irregularly scattered over the tarsal conjunctiva, being at first merely greyish white specks not raised above the surface. These small spots are quite characteristic, and will develop into typical trachoma bodies unless treatment checks their future growth.

If there is much papillary enlargement as well, the swollen papillæ may hide these early follicles and mask the condition. The follicles will then make their appearance after the acute inflammation has subsided and the papillæ are reduced to their natural size.

The infectivity of trachoma is a point on which a great many different opinions have been expressed. I could quote many examples bearing upon the question, but a case came before my notice last year which is worth quoting. A child who had been admitted to the Brentwood schools with simple catarrhal ophthalmia, and who was about to be discharged cured from the institution, being anxious to remain where she was, was seen by one of the charge nurses to take some discharge from a child's eye (the latter suffering from trachoma in the acute stage) and to rub her own eyes with the infected finger before she could be prevented from doing so. It was not, however, until nearly four weeks after the event that definite trachoma follicles appeared, after which the disease went through its usual course, the follicles being squeezed out as they came to the surface, and the lids painted with bichloride of mercury. She made a good recovery, and was discharged cured nine months afterwards.

I will conclude my statements with a short account of the working arrangements which are now being carried out in these schools. On

arrival the children are inspected in an admission block, where a bacteriological examination is made of the discharge from the eyes. The children are segregated according to the character of the ophthalmia from which they are suffering. A certain number of houses are reserved for trachoma cases, each house having beds for twelve children.

Cases which have much discharge from the eyes are at first kept from school until the secretion has been reduced to a slight amount.

For every six houses a treatment room is provided where a trained nurse bathes the eyes with lotion and applies ointment, etc. All applications of strong caustics are made with small paper spills, on the ends of which are twisted pieces of absorbent wool. These are destroyed immediately after use in each case.

The nurses make a record of the discharge from the eye of all the children under their care. This is kept in a book on the temperature chart principle, a curved line indicating whether the amount of secretion on any particular day was very slight, slight, much, or profuse at the morning inspection, thus the progress of the case can be seen at a glance.

The children are all washed under sprays, and with continuously running water, so that there can be no accumulation of possibly infected material in the baths.

Each child is also provided with a separate towel, which is afterwards hung on its correspondingly numbered peg, so that all chances of fresh contagion are reduced to a minimum

The schools are built on high ground in salubrious country districts. Everything, therefore, is done to promote a rapid cure of the disease, with the result, as I have stated, that the average period of the treatment extends over about eighteen months.

Taking a hundred cases recently discharged cured, the periods of detention were found to be as follows :—Under 12 months, 29 ; 12 to 24 months, 48 ; 24 to 36 months, 19 ; 36 to 48 months, 4. Total, 100.

SECTION VIII.

SPECIAL SCHOOLS FOR FEEBLE-MINDED AND EXCEPTIONAL CHILDREN.

ÉCOLES SPÉCIALES POUR ENFANTS ARRIÈRÉS OU ANORMAUX.

SONDERSCHULEN FUR SCHWACHBEGABTE UND ABNORME KINDER.

President.

W. H. Dickinson, M.P., J.P., D.L., B.A.

Secretaries.

R. Langdon Down, M.B., Hampton Wick.

G. E. Shuttleworth, B.A., M.D., East Sheen, S.W.

PRESIDENTIAL ADDRESS.

By W. H. Dickinson, M.P.

I shall confine myself to welcoming most cordially all those friends who have come from distant parts to give us the benefit of their experience and advice, and to making a few observations of a general character with reference to the questions relegated to this section.

The very fact that a Congress is now regularly established for the purpose of debating the subject of school hygiene, and that this Congress draws from all parts of the world persons interested and informed in this matter, is, I think, a remarkable proof of the advance of civilisation and of the universal growth of humanitarian ideas. We are now all imbued with the theory that it is a nation's duty to supervise and to foster its child population, and that it should be a definite function of the State to see that its future constituents have every opportunity that science can provide of becoming healthy, intelligent, and useful citizens. But still more remarkable is it that in this process society has been persuaded to recognise that this communal duty extends to the protection of those who have hitherto been regarded as incapable of being useful and productive members of the community.

The Spartans, fired with the ideal of preserving in its highest form the virility of their race, ruthlessly exposed their weaklings to perish on the mountain-side. Less openly, but not less callously, modern nations have left these unfortunates to stand on one side, unnoticed, uncared for, like waste products cast out upon the scrap-heap of humanity.

Yet, like waste products, even these feeble folk have been discovered to possess some value when subjected to processes of science and philanthropy, and it is the knowledge of this truth which has brought us all here together, and is inspiring men and women all over the world to devote themselves to the task of eliciting that spark of intellect which, even in the lowest types of human beings, is capable of emitting some slight glimmer when fanned into activity.

Those who have visited the different classes of asylums for idiots and imbeciles must have noticed how greatly the happiness of even the most helpless idiot depends upon the efforts made to bring out his latent potentiality for work, or rather, his power of applying himself to some kind of employment.

In Dr. Fernald's institutions in Massachusetts that remarkable and devoted man attributes his success to the fact that he has trained his assistants to draw out from every imbecile child some effort of will or of mental or physical force which would never have appeared had the child been left to itself.

This process of education, in the generic sense of the term, is applicable to the feeble-minded of all classes, although, of course, in varying degrees and with varying results. But the education I refer to is not the education that we speak of in ordinary parlance. It must be special in its character and special in its objects. The children in our special classes may not appear to be imbecile in the usual sense of that word, but it must not be forgotten that they are and will never cease to be defective. Such children cannot be, and ought not to be, taught by the same methods, or with the same objects in view, as are the normal children. That in the cosmogony of human affairs and industries a use can be found for the feeble-minded I have no shadow of doubt; but the theory that by ordinary schooling they can ultimately be elevated to the level of the normal person has long been abandoned, and it must now be admitted to be a waste of time, intellect and energy for the community to provide elaborate arrangements aimed at what is an unattainable result.

To use a proverbial expression, you cannot make a silk purse out of a sow's ear. But even this humble product of nature can be put to various profitable uses, and the same observation holds good with respect to a mentally defective child. It has its uses, and it is our business to discover and develop them.

The problem that lies before those who are educating the feeble-minded is twofold: firstly, to decide what is to be the child's *rôle* in life, and secondly, how best to fit it for this *rôle*.

I will not venture to dogmatise on either of these complicated questions beyond expressing an opinion that the more we attempt to give to these weaker vessels of the human race such manual occupation as they are capable of undertaking the more shall we assure to them physical benefit and moral contentment, and the more shall we further the economic interests of the community. As society becomes aware of the existence of this class in its midst, and of the evils which ensue both to it and to them from its neglect of the feeble-minded, it will, I am sure, recognise that it is its duty to provide for their permanent care, control and employment.

When this is acknowledged it will be found that there are certain branches of industry which, under proper supervision, the mentally

afflicted can be trained to exercise with successful results, and it is for labour of this kind that we should aim at preparing them. The simpler their after-life is, and the more modest our aspirations for them are the more useful and happy will be their existence. Let us therefore strive to fit them for those simple industrial occupations for which alone they are competent, and in doing so we can rest assured that we are thereby serving the best interests of the nation, and also earning from thousands of these poor helpless folk a gratitude which, though unspoken and often unshown, will be to our own inner consciousness none the less real and satisfying.

DER STAND DES UNTERRICHTS FÜR SCHWACHBEFÄHIGTE IN DEUTSCHLAND.

Von Stadtschulrat Dr. WEHRHAHN, Hannover.

VON dem deutschen Hauptkomitee für den 2. Internationalen Kongress für Schulhygiene bin ich aufgefordert worden, Ihnen über den Stand des Unterrichts für Schwachbefähigte in Deutschland zu berichten. Da auf dem 1. Internationalen Kongress für Schulhygiene Herr Frenzel einen ausführlichen Vortrag über die "Hilfsschulen für Schwachbefähigte" gehalten hat und auch von anderen hervorragenden Sachverständigen in den letzten Jahren vorzügliche Darstellungen dieser Materie erschienen sind, kann es nicht die Meinung meiner Auftraggeber gewesen sein, dass hier heute ein eingehender, erschöpfender Bericht über das deutsche Hilfsschulwesen erstattet werden solle. Da die Hilfsschule eine verhältnismässig noch recht junge Anstalt ist, die Erfahrungen und die Arbeit auf dem Gebiete des Hilfsschulwesens also noch neu und gewiss nicht abgeschlossen sind, halte ich es vielmehr für meine Aufgabe zu untersuchen, welche Fragen wir als gelöst betrachten dürfen, was wir auf dem Gebiete des Hilfsschulwesens bisher erreicht haben und was ferner erstrebt werden muss.

Die *Notwendigkeit* und der *Nutzen* der Hilfsschulen ist ja schon früher nur *ganz vereinzelt* bestritten worden; zur Zeit wird wohl von keiner Seite mehr bezweifelt, dass sie segensreich wirken. Nicht so einmütig ist man in der Beantwortung der Frage: *Welche Kinder gehören in die Hilfsschule?* Auf dem 3. Verbandstage der Hilfsschulen Deutschlands in Augsburg (1901) wurden folgende Leitsätze einstimmig angenommen:

Die Hilfsschule ist für diejenigen Kinder bestimmt, die derartig geistig geschwächt sind, dass sie an dem Unterricht in einer Volks- bezw. Bürgerschule nicht mit Erfolg teilnehmen können. Abzuweisen sind:

1. Kinder, die an Schwachsinn höheren Grades oder an Blödsinn leiden;
2. blinde und taubstumme Kinder, sowie schwerhörige, wenn die Schwerhörigkeit so gross ist, dass sie an dem Unterrichte für hörende Kinder nicht teilnehmen können;

3. epileptische Kinder ;
4. geistig normale Kinder, welche wegen ungünstiger Schulverhältnisse, wegen mangelhaften Schulbesuchs oder wegen Krankheit in der Ausbildung zurückgeblieben sind, und solche, welche nur in einzelnen Unterrichtsfächern schwach sind ;
5. sittlich verkommene Kinder.

Bei der damals noch herrschenden grossen Mannigfaltigkeit bezüglich der Gruppeneinteilung der geistesschwachen Kinder hat der Verbandstag es absichtlich vermieden, bezüglich der den Hilfsschulen zu überweisenden Kinder irgend eine Terminologie auzuwenden. Auch heute kann von einer Uebereinstimmung der Fachmänner in diesem Punkte noch keine Rede sein. Es scheint aber, besonders in pädagogischen Kreisen, die Dreiteilung "Blödsinnige, Schwachsinnige schwereren Grades, Schwachsinnige leichteren Grades" immer mehr Boden zu gewinnen ; die letzteren sind unsere Hilfsschulkinder und werden aus Rücksicht auf die Eltern meist als schwachbefähigt bezeichnet. Der Name Hilfsschule (für schwachbefähigte Kinder), welcher auf dem Augsburger Verbandstage einstimmig ohne Debatte angenommen wurde, scheint sich inzwischen allgemein eingebürgert zu haben.

Auf den früheren Streit der Vertreter der Idiotenanstalten und der Hilfsschulen über ihre Grenzregulierung brauche ich nicht einzugehen, da jetzt wohl auf beiden Seiten die Ansicht vertreten wird, dass die erste und zweite der vorhin unterschiedenen Abteilungen den geschlossenen Anstalten und die dritte den Hilfsschulen zuzuweisen ist, letzteres allerdings unter der Voraussetzung, dass die Arbeit der Hilfsschule nicht durch die Familie gehindert oder vernichtet wird, in welchem Falle ebenfalls Anstaltserziehung eintreten müsste. Auch die Abweisung der in dem obigen Leitsatze bezeichneten Kinder von der Hilfsschule scheint im allgemeinen als richtig anerkannt zu werden. Allerdings wurde auf dem Internationalen Kongress für Schulhygiene in Nürnberg noch von einem einflussreichen Pädagogen gefordert, dass auch Kinder, welche infolge von Krankheiten, schlechter Ernährung, Blutarmut etc. zurückgeblieben seien, in der Hilfsschule Aufnahme finden müssten, welche Forderung ich unter Hinweis auf No. 4 des obigen Leitsatzes als nicht berechtigt bezeichnen musste. Wenn auf solche Kinder besondere Rücksicht genommen werden soll, dürfte nur eine Einrichtung nach Art der im *Mannheimer System* vorgesehenen Förderklassen in Frage kommen. Selbstverständlich werden ja bei der Aufnahme in die Hilfsschule vereinzelt Irrtümer vorkommen und infolgedessen Rückversetzungen in die Normalschule nötig werden, aber man sollte doch aus den verschiedensten Gründen ängstlich bedacht sein, solche Irrtümer zu vermeiden. Heute wird wohl niemand mehr dem Satze widersprechen : Ein Kind, für dessen Schwachbefähigung man keine Beweise hat, gehört nicht in die Hilfsschule, und ein schwachbefähigtes Kind wird niemals für den Unterricht einer Normalklasse geeignet sein, auch wenn es dem Alter nach voraus ist. Durch eine Verfügung des preussischen Kultusministers (6. iv. 1901) ist die Rückversetzung älterer Hilfsschulkinder in untere Volksschulklassen verboten worden. Dagegen wird man es nicht als einen Fehler oder Irrtum bezeichnen können, wenn sich bei einem Kinde im Laufe der Zeit herausstellt, dass es in so hohem Grade schwachsinnig ist, dass es dem Unterricht in der Hilfsschule nicht folgen kann und nun einer Anstalt überwiesen werden muss. In einem solchen

Falle ist niemanden geschadet worden; die Eltern werden sich jetzt aber viel leichter bereit finden lassen, ihr Kind einer Anstalt zu übergeben, nachdem durch den kurzen Aufenthalt in der Hilfsschule die Notwendigkeit eines solchen Schrittes erwiesen ist.

Bezüglich der Frage, *in welchem Alter* ein Kind der Hilfsschule zu überweisen ist, hat der Verbandstag in Augsburg den Grundsatz aufgestellt, dass die Aufnahme in der Regel erst nach einem *ein-* bis *zwei*jährigen erfolglosen Besuche der Volksschule geschehen möge. Darnach wird auch heute noch wohl meistens verfahren. In Gemeinden, wo ein besonderer *Prüfungsausschuss* eingesetzt ist, bestehend aus einem Schulaufsichtsbeamten, einem Hilfsschularzt und dem Leiter der Hilfsschule—eine Einrichtung, die an allen Orten mit Hilfsschulen getroffen werden sollte—werden auf Grund der gesammelten Erfahrungen auch Kinder nach *ein*jährigem Schulbesuch, ja in einzelnen Fällen selbst *Lernanfänger* unbedenklich aufgenommen werden können wenn an ihrer geistigen Schwäche durchaus nicht zu zweifeln ist. Je früher ein Kind der Hilfsschule zugeführt wird, desto mehr Nutzen wird es davon haben.

Während es bis vor kurzem noch zweifelhaft war, ob ein Kind in Preussen gegen den Willen der Eltern der Hilfsschule zugeführt werden konnte, ist durch Urteil des Kammergerichts vom 25. Januar 1906 entschieden, dass die Hilfsschule ein Teil der öffentlichen Volksschule ist und bei ihr der *Schulzwang* in gleicher Weise ausgeübt werden kann wie bei der Normalschule. Bei hartnäckigem Widerstande der Eltern, auf den man ohne Frage hin und wieder stossen wird, ist eine zwangsweise Einschulung im Interesse der bedauernswerten Kinder bisweilen durchaus geboten. Da aber gerade bezüglich unserer Hilfsschulkinder ein friedliches und einmütiges Zusammenwirken von Haus und Schule von grossem Werte ist, so wird der vom Augsburger Verbandstage angenommene Grundsatz—" Die Einwilligung der Eltern zur Ueberführung der Kinder in die Hilfsschule ist tunlichst auf gütlichem Wege zu erlangen" —auch heute noch allgemein Geltung haben. Der Mainzer Verbandstag (1903) nahm folgenden Leitsatz an: " Die zwangsweise Ueberweisung hat *nur* da einzutreten, wo Eltern hartnäckig ihre Einwilligung zur Ueberführung ihres Kindes in die Hilfsschule verweigern und nicht den Nachweis erbringen, dass in anderer Weise unterrichtlich genügend für dasselbe gesorgt ist." Auch hieraus geht hervor, dass man ein Zusammenwirken von Schule und Haus bezüglich der Hilfsschulkinder für durchaus notwendig hält.

Bezüglich des *Aufnahmeverfahrens* ist man darin einig, dass, wenn irgend möglich, ein Prüfungsausschuss über die Aufnahme entscheidet. Wenn eine Verfügung des preuss. Kultusministers den *Hilfsschularzt* für unentbehrlich hält, so wird er naturgemäss bei der Aufnahme am unentbehrlichsten sein. Wo an den Normalschulen Schulärzte tätig sind, werden auch diese schon bei der Auswahl der Hilfsschulkinder tätig sein. Um den über die Aufnahme zu befindenden Personen Richtlinien an die Hand zu geben, hat man allgemein den Fragebogen oder *Aufnahmeschein* eingeführt. Die allzugrosse Mannigfaltigkeit in der Form desselben wird hoffentlich durch das auf dem Charlottenburger Verbandstage (1907) angenommene und zur Einführung empfohlene einheitliche Formular des *Personalbogens* wesentlich eingeschränkt werden. In einzelnen Schulen hat sich der Gebrauch eingebürgert, die Kinder bei der Aufnahme und bei der Entlassung zu photographieren. Es werden sich da gewiss

oft recht interessante Vergleiche ergeben und das Wort bestätigen, dass der Geist den Körper baut.

In den Kreisen der Hilfsschulpädagogen herrscht darüber allgemeine Uebereinstimmung, dass wie für die Schwachsinnigen überhaupt, so insbesondere für die Hilfsschulkinder eine möglichst weitgreifende *Fürsorge* geübt werden muss, da sie der Regel nach den ärmsten Volksklassen angehören und zum grossen Teil auch körperlich gebrechlich und hilfsbedürftig sind. Daher sollten sie bei dem für arme Volksschüler eingerichteten Milchfrühstück und Mittagessen, bei den Ferienkolonien in erster Linie berücksichtigt werden; keine Hilfsschule sollte ohne Brausebad sein. Der Hilfsschularzt sollte nicht allein verpflichtet sein, die Hilfsschulkinder zu untersuchen, sondern auch berechtigt sein, den Eltern Rat und Anweisung bezüglich ihrer Krankheiten und Gebrechen zu geben. In manchen Städten werden ja auch Brillen, orthopädische Hilfsmittel u.a. auf Gemeindekosten für die Kinder beschafft, ohne dass dies als Armenunterstützung für den Vater in gesetzlichem Sinne angesehen wird. Die *Entlassung* der Hilfsschulkinder geschieht wie bei den Volksschulkindern nach Beendigung der Schulpflicht; bisweilen wird sie auf Wunsch der Eltern auch wohl noch um 1 Jahr hinausgeschoben.

Die *Schulpflicht* ist in den deutschen Staaten und den einzelnen Landesteilen sehr verschieden. Wenn in Preussen in nicht zu ferner Zeit, wie man erwartet, eine gesetzliche Regelung dieser Materie vorgenommen wird, so dürfen wir hoffen, dass dann für die Hilfsschulkinder eine verlängerte Schulpflicht eingeführt wird. In dieser Hinsicht ist uns das Land, dessen Gäste wir sind, mit nachahmungswertem Beispiel vorangegangen. Vorläufig müssen wir bestrebt sein, für die aus der Hilfsschule Entlassenen besondere Fortbildungsschulen einzurichten, wie dies an manchen Orten mit gutem Erfolge geschehen ist.

Wie für die Hilfsschulkinder *während* der Schulzeit, so ist auch für die aus der Schule Entlassenen eine besondere Fürsorge erforderlich. Zu diesem Zwecke haben sich erfreulicher weise in manchen Orten *Fürsorgevereine* gebildet, eine Einrichtung, welche dringend empfohlen werden muss.

Die in diesem Jahre aufgenommene Statistik hat ergeben, dass von früheren Hilfsschulkindern in Preussen 70 % völlig erwerbsfähig, 22 % teilweise erwerbsfähig geworden und nur 8 % erwerbs*un*fähig geblieben sind; in den übrigen deutschen Staaten sind die entsprechenden Zahlen 67 %, 24 % und 9 %. Es kann keinem Zweifel unterliegen, dass zu diesem überraschend günstigen Ergebnis jene Fürsorgevereine wesentlich beigetragen haben; in erster Linie wird es aber das Verdienst der Hilfsschullehrer und -leiter sein. Ausserordentlich wichtig ist es, dass schon vor Beendigung der Schulzeit das Lehrerkolleg und der Schularzt sich ein Urteil darüber zu bilden suchen, für welchen *Beruf* der Zögling am besten geeignet sein dürfte.

Bezüglich der Knaben muss sich die Fürsorge des Lehrers auch auf den *Militärdienst* derselben erstrecken. Erfreulicherweise haben ja jetzt die massgebenden Behörden Anordnungen getroffen, welche geeignet sind, die Uebelstände, welche durch Einstellung der geistig Minderwertigen für diese selbst und für den Heeresdienst hervorgerufen wurden, auf ein geringes Mass zu beschränken. Ferner hat man in massgebenden juristischen Kreise anerkannt, dass die vermindert Zurechnungsfähigen

in der Justiz, besonders im *Strafrecht*, einer besonderen Berücksichtigung bedürfen.

ORGANISATION DER HILFSSCHULE.

"Die Hilfsschule ist als *öffentliche, selbständige* Schule anzuerkennen. *Nebenklassen* und *Nachhilfeabteilungen* können die Hilfsschule nicht ersetzen." In diesem vom Augsburger Verbandstage angenommenen Leitsatze ist die in der Lehrerschaft allgemein verbreitete Ansicht über die Stellung, welche die Hilfsschule einnehmen muss, wiedergegeben; in der Literatur ist sie ausführlich begründet.

In den meisten Orten, wo man eine Hilfsschule hat errichten wollen, wird man mit *einer* Klasse angefangen und sie erst nach *einem* oder mehreren Jahren weiter- und ausgebaut haben. Bei genügender Kinderzahl ist man meistens bis zur *sechsstufigen* Schule fortgeschritten und hat dann die unterste Klasse oft als Vorstufe bezeichnet. Eine Trennung der Geschlechter findet in nur wenigen Orten statt; sie wird in der Fachliteratur nicht für nötig erachtet. Auch die Verschiedenheit des *Bekenntnisses* ist keineswegs stets ein Grund zur Trennung der Klassen gewesen. In einem Erlasse des preussischen Unterrichtsministers vom 16. Juni 1894 wird mitgeteilt, dass die Städte Mittel bereit gestellt hätten, dass die Klassenfrequenz nicht über 25 Kinder zu steigen brauche. Die in diesem Jahre aufgestellte Statistik ergibt für die deutschen Hilfsschulen eine *Durchschnittsfrequenz* von 22. Im allgemeinen hält man es wohl für zutreffend, in der Vor- oder Unterstufe mit etwa 15 Kindern zu beginnen und in die Oberstufe etwa 25 aufzunehmen.

Ueber das Zahlenverhältnis der Hilfsschulkinder zu den schulpflichtigen Kindern und zu der Einwohnerzahl einer Gemeinde lassen sich bis jetzt zuverlässige Angaben, auf Grund derer man für andere Städte die Zahl der Hilfsschulkinder berechnen könnte, nicht machen. Es ist aber bestimmt anzunehmen, dass Industriestädte mit starker Arbeiterbevölkerung mehr Hilfsschulkinder haben als Städte mit geringer Arbeiterbevölkerung. Nach dem Erlass des preussischen Unterrichtsministers vom 2. Januar 1905 beträgt die Zahl der Hilfsschulkinder etwa 1 % der schulpflichtigen Kinder.

Die Gesamtzahl aller Kinder, die eines Hilfsschulunterrichts bedürfen, stellt sich nach den Ermittelungen verschiedener Länder auf etwa 1½ % aller schulpflichtigen Kinder.

DER STUNDENPLAN.

Es ist selbstverständlich, dass, wenn schon für die Volksschule eine Reihe von Forderungen der Schulhygiene bezüglich des Stundenplanes erfüllt werden soll, dies in erhöhtem Masse für die Hilfsschule geschehen muss. Wie dies aber im einzelnen gemacht werden soll, darüber gehen die Meinungen doch noch ziemlich auseinander. Was zunächst die *wöchentliche* Stundenzahl anbetrifft, so schwankt sie in den einzelnen Schulen zwischen 12 und 30. Auf dem Mainzer Verbandstage (1903) gingen die Meinungen hierüber sehr auseinander. Man einigte sich auf folgenden Leitsatz: "Die Unterrichtsstunden für die Kinder betragen in der Regel wöchentich 20–26, einschliesslich Handarbeit (freies Spiel, sowie Beschäftigung nicht eingerechnet)." Gegenüber dem Hinweis, dass Hilfsschulkinder im Unterricht leichter ermüden als normale, wurde betont, dass besonders in den unteren Klassen viel Arbeit an den einzelnen

Kindern geleistet werden muss, während dieser Zeit aber der Geist der übrigen mehr oder weniger ausgespannt wird. Auch aus sonstigen Erwägungen, auf die ich hier aus Mangel an Zeit nicht näher eingehen kann, fand die Forderung einer starken Beschränkung der Stundenzahl im Verhältnis zur Volksschule grossen Widerspruch. Durch Erlass des preussischen Unterrichtsministers vom 2. Januar 1905 wird bestimmt, dass die Hilfsschulkinder nicht über *vier* Stunden täglich *mit Lernen* zu beschäftigen seien. Es heisst dann aber weiter: "Nach $\frac{1}{2}$–$\frac{3}{4}$ stündiger *Lern*arbeit muss regelmässig eine kleine Erholung oder die Beschäftigung mit Gartenbau, mit *Turnen, Handarbeiten* oder *Handfertigkeiten* eintreten."

Einmütig ist man in der Forderung, dass der *Nachmittagsunterricht* möglichst in Fortfall kommt. Zu den Gründen, welche diese Forderung für die Normalschulen berechtigt erscheinen lassen, kommt noch der, dass die Hilfsschulkinder sehr oft weitere Schulwege haben als die Volksschulkinder.

Vielfach hat man durch Gleichlegung der Hauptfächer (besonders Deutsch und Rechnen) die Möglichkeit geschaffen, Kinder einzelner Klassen in der Weise auszutauschen, dass ein Kind, dessen Wissen und Können beispielsweise im Rechnen dem Standpunkt einer höheren Klasse entspricht, in der betreffenden Stunde ohne Schwierigkeit in letztere übergehen kann.

In manchen Schulen werden die einzelnen Jahrgänge von demselben Lehrer durch mehrere oder alle Stufen geführt.

In einigen Schulen werden nur halbstündige Lektionen erteilt.

Der Lehrplan.

In dem Erlass des preussischen Unterrichtsministers vom 2. Janua 1905 heisst es: "Von allen Seiten wird anerkannt, dass für den Lehrplan der Hilfsschule und für die Lehrziele der einzelnen Klassen allgemeingültige Vorschriften nicht gegeben werden können, dass dabei den besonderen Verhältnissen der Schule in jedem einzelnen Falle Rechnung zu tragen sei," aber trotz dieser grossen Schwierigkeiten "kann auf einen solchen hier am wenigsten verzichtet werden." Einige grössere Städte haben gedruckte Lehrpläne.

Besondere, für die Hilfsschule bestimmte Lehrbücher sind naturgemäss erst wenige vorhanden.

Als der Hilfsschule eigentümliche Fächer finden sich in der Regel in den Lehrplänen der sogen. *Artikulationsunterricht* für Kinder, welche mit Sprachgebrechen behaftet sind, und der *Knabenhandarbeitsunterricht.*

Die Hilfsschule will ihre Zöglinge zu brauchbaren, erwerbsfähigen Mitgliedern der menschlichen Gesellschaft heranbilden, sie will sie zu sittlich religiösen Menschen machen; sie muss also in erster Linie Erziehungsanstalt sein. Sie hat der körperlichen Erziehung ein besonderes Augenmerk zuzuwenden, das schwache Selbstvertrauen zu heben, Gehorsam, Aufmerksamkeit, Selbsttätigkeit, Fleiss und Ordnung zu pflegen. Nicht auf die Stoffmenge kommt es an, sondern auf zweckentsprechende, sorgfältige Verarbeitung und Aneignung des Stoffes. Ueberbürdung ist zu vermeiden. Die Darbietung des Stoffes muss einfach, knapp, anschaulich und möglichst lückenlos aufbauend sein. Spaziergänge, unterrichtlichen Zwecken dienend, sind oft, auch während der Unterrichtszeit zu unternehmen. Schulprüfungen in Gegenwart der Eltern sollen vereinzelt noch vorkommen, sind aber natürlich zu verwerfen.

Hausaufgaben—möglichst gering bemessen—werden von manchem Hilfsschullehrer noch für nützlich gehalten.

Körperliche Strafen werden von vielen, besonders von den Aerzten, durchaus verworfen; andere sind der Ansicht, dass sie gerade in Rücksicht auf die den Hilfsschulkindern eigentümlichen Charaktereigenschaften nicht ganz zu entbehren sind.

Auf die einzelnen Fächer und ihre Lehrziele, auf das Lehrverfahren, die Lehrmittel u.a. näher einzugehen, verbietet die mir zur Verfügung stehende Zeit; nur auf *einen* Punkt möchte ich noch hinweisen: Es ist allgemein die Ansicht der Hilfsschullehrerschaft, dass im *Konfirmandenunterricht* die schwachbegabten von den normalbegabten Kindern zu trennen sind, der Unterricht dann aber nicht von *jungen* Geistlichen erteilt werden sollte.

Der Hilfsschullehrer.

Fast ausnahmslos werden für die Hilfsschulen die tüchtigsten Kräfte herangezogen und sorgsam ausgewählt; aber da es für sie gilt, Aufgaben zu lösen, auf welche bei ihrer Ausbildung keine oder nur geringe Rücksicht genommen wurde, so stellt sich immer dringender das Bedürfnis heraus, dass den Hilfsschullehrern Gelegenheit geboten werde, sich eine den Zwecken dieser Anstalten entsprechende besondere Ausbildung zu erwerben. Der preussische Unterrichtsminister stellt in dem Erlass vom 2. Januar 1905 in Aussicht, dass der Staat diesem Bedürfnis demnächst Rechnung tragen werde. Vorläufig sucht man sich mit Fortbildungskursen, welche von privater Seite eingerichtet werden, zu helfen.

Von einigen Seiten wird die Einführung einer besonderen Hilfsschullehrerprüfung gefordert. Der Bremer Verbandstag hat nach eingehender Beratung diese Forderung fast einmütig abgelehnt und folgenden Leitsatz angenommen: "Die besondere Aufgabe, welche die Erziehung Schwachsinniger an den Lehrer stellt, erfordert auch eine spezielle Vorbildung für dieses Gebiet der pädagogischen Tätigkeit. Zum Zwecke der Ausbildung der Hilfsschullehrer empfiehlt es sich, dass Kurse eingerichtet werden, in denen die Lehrer theoretisch und praktisch mit dem Hilfsschulwesen bekannt gemacht werden." Fast überall wird den Hilfsschullehrern in Rücksicht auf ihre eigenartige, schwierige und oft sehr entmutigende Arbeit eine besondere Gehaltszulage gezahlt. Die Hilfsschulen werden wohl ohne Ausnahme von Pädagogen, nicht—wie vereinzelt gefordert worden ist—von Aerzten geleitet, freilich oft, besonders die kleineren, noch von Leitern der Volksschulen im Nebenamte. Je mehr jedoch die Ansprüche, welche man an die Ausbildung der Hilfsschullehrer stellt, steigen, um so gerechtfertigter wird die Forderung sein, dass auch die Leitung der Hilfsschule einem in gleicher Weise ausgebildeten Pädagogen im Hauptamte übertragen werde, wie dies übrigens in vielen Städten bereits geschieht.

Lehrerinnen sind bis jetzt—im Gegensatz zu England—erst in geringer Zahl an den deutschen Hilfsschulen tätig, abgesehen von den Handarbeitslehrerinnen. Es dürfte unserer Hilfsschule gewiss nicht nachteilig sein, wenn mit der Zeit tüchtig vorgebildete Lehrerinnen *einen mütterlichen* Einfluss an ihr ausübten.

Für die schwachbefähigten Kinder der *vermögenden* Klassen gibt es in Deutschland eine Reihe vorzüglich geleiteter *Privatanstalten*.

Als ein grosser Uebelstand wird es empfunden, dass für die schwach-

befähigten Kinder der *kleineren* Städte und der *Landgemeinden* bis jetzt sehr wenig getan ist. Auf dem nächsten Verbandstage soll über diese Frage, nachdem sie von den Unterverbänden gründlich geprüft ist, verhandelt werden, und wir hoffen, dass die Verhandlungen nicht ganz fruchtlos bleiben werden.

Zum Schluss gestatte ich mir, Ihnen aus der in diesem Jahre aufgenommenen Statistik einige Zahlen mitzuteilen.

Stand des Hilfsschulwesens in Deutschland Ostern 1907.

A.—*In Preussen* sind 130 Städte mit 204 Hilfsschulen, welche 623 Klassen haben; davon sind 567 gemischt und 56 nach Geschlechtern getrennt. In ihnen werden 13102 Kinder von 505 Lehrern und 160 Lehrerinnen, zusammen von 665 Lehrpersonen unterrichtet. Jede Klasse hat also durchschnittlich 21 Kinder.

Von den in der Zeit von 1900 bis 1904 nach beendeter Schulpflicht entlassenen Kindern sind 2130 (= 70 %) völlig erwerbsfähig, 673 (= 22 % teilweise erwerbsfähig geworden, und 243 (= 8 %) erwerbs*unfähig* geblieben.

An Sprachstörungen leiden	1682	= 12·84 %
An Schwerhörigkeit leiden	871	= 6·65 %
An Augendefekten leiden	1012	= 7·72 %
An Lähmungen und körperlichen Gebrechen leiden	610	= 4·66 %

Es wurden bislang (*a*) in die Volksschule zurückversetzt	524	Kinder.
(*b*) in eine Idiotenanstalt überführt	378	,,
(*c*) wegen hochgradiger Epilepsie ausgeschieden	95	,,
(*d*) anderen Erziehungsanstalten überwiesen	402	,,

B.—*In den übrigen deutschen Staaten* sind 86 Städte mit 110 Hilfsschulen, welche 298 Klassen haben; davon sind 234 gemischt und 64 nach Geschlechtern getrennt. In ihnen werden 7649 Kinder unterrichtet. Jede Klasse hat durchschnittlich 23·7 Kinder. Auf die Knaben entfallen 57 %, auf die Mädchen 43 %.

Von den in der Zeit von 1900 bis 1904 nach beendeter Schulpflicht entlassenen Kindern waren 67 % völlig erwerbsfähig, 24 teilweise erwerbsfähig und 9 % blieben erwerbs*unfähig*.

Seit 1900 wurden 563 Kinder in die Volksschule zurückversetzt. Bei dieser Zahl ist zu bedenken, dass in einigen Staaten *Nachhilfeklassen* bestehen, welche ihre Zöglinge nur eine Zeitlang behalten. Ferner wurden 183 einer Idiotenanstalt und 191 anderen Erziehungsanstalten (Anstalt für Epileptiker, Taubstummenanstalt, Blindenanstalt, Waisenhaus, Krüppelheim, etc.) überwiesen.

C.—*In ganz Deutschland* sind 216 Städte mit 314 Hilfsschulen, welche 921 Klassen haben; davon sind 801 gemischt und 120 nach Geschlechtern getrennt. In ihnen werden 20151 Kinder unterrichtet, so dass darnach jede Klasse durchschnittlich 23 Kinder hat.

Seit 1903, wo die letzte Statistik aufgenommen wurde, ist die Zahl der Klassen um 56 %, die der Kinder um 68 % angewachsen.

Dieses geradezu überraschende Anwachsen der deutschen Hilfsschulen ist ja ohne Zweifel nur der überaus rührigen, treuen und aufopferungsvollen Arbeit der Lehrerschaft zu verdanken, welche sie nicht allein in

der Hilfsschule, sondern auch in der eigenen Fortbildung, in den Konferenzen und Fortbildungskursen geleistet hat. Aber dankbar müssen wir auch anerkennen, dass unsere deutschen Schulbehörden, insbesondere das preussische Unterrichtsministerium, dieser noch so jungen Schulgattung mit Vertrauen gegenüber getreten sind, ihrer Entwickelung keine Hemmnisse bereitet haben, vielmehr in jeder Weise bemüht gewesen sind, ihr den Weg frei zu machen, um sie zu einem wertvollen sozialen Rüstzeug unseres Volkes werden zu lassen.

Dr. BOULENGER (Brussels), au nom du Dr. Decroly, demande (1) si en Allemagne on est définitivement fixé sur le meilleur moyen à employer pour l'instruction des anormaux : le système des écoles ou des classes spéciales. (2) Comment arrive-t-on en Allemagne à faire le choix des enfants pour les écoles spéciales ? Attend-on qu'ils soient en retard de deux ou trois ans dans leurs études ou bien a-t-on une méthode spéciale d'investigation (tests ou autre moyen de diagnostic) ?

Dr. G. E. SHUTTLEWORTH (London) asked Dr. Wehrhahn whether the statistics in his paper, showing that 70 per cent. of those who had passed through the Hilfsschulen were capable of being wage-earners, included not only mental defectives, but other physically defective children. The percentage was much higher than was shown as the results of "special instruction" in England.

Councillor PETER WRIGHT (Newport, Mon.) asked whether the State or voluntary agencies are employed to investigate or educate the mentally deficient or imbecile children ? Whether there is any law in Germany at present to prevent marriage—to stop the supply. We are dealing with effects, if not with causes.

Dr. M. FRIEDEBERGER (West Hampstead) : The determination of the degree of feeble-mindedness according to the degree of speech-power and the power of expressing language seems to be most suitable for the proper classification of the feeble-minded for the purpose of instruction in class.

THE FEEBLE-MINDED : HOW TO PREVENT THEIR EVIL EFFECT UPON THE MORAL AND PHYSICAL WELL-BEING OF THE RACE.

By MISS M. DENDY.

NOT long since I was going along a suburban road when I was stopped for a few minutes by a dismal procession. It consisted of forty or fifty men ; they were being taken out for a walk, just as if they were little children ; some of them were holding each other's hands ; a few, I was glad to see, had pipes in their mouths ; all were walking slowly, with a heavy listless slouch ; all were dull and apathetic ; they looked neither to right nor left, and many of them stumbled as they went. They were of very different ages ; some scarcely past their boyhood, some much older—how much, it would be difficult for anyone to say who did not see their birth-certificates, for they were prematurely aged, and unrestrained passion had written its evil story on many faces, for these were weak-minded male paupers out for their airing. It was a heart-sickening sight,

all the worse to witness because I knew what must have been the preliminary steps to this stage in their wretched existence, and because I knew also how very different their fate might have been. I called to mind another set of young men, not better endowed mentally than these. I thought of how they went cheerfully and punctually about their daily work, gaily happy for the most part, like good children who are delighted with successful labour which brings them praise and promotion, living lives that were useful and harmless, and as natural as the lives can be of those who are marked from birth as of a different and lower mental grade than that of their fellows. As I stood aside waiting for the miserable procession to pass, I thought of the train of misery and distress that each one had probably left behind him on his road to the workhouse, where he had come to be minded like a helpless and naughty child; and I wondered how much longer we should be willing to wait until our weak in intellect become moral and physical wrecks before we will do anything to help them.

This is essentially a question for our Congress, as our method of dealing with the weak-minded child determines his fate as a man. So I take those pauper imbeciles as a text to-day and try to demonstrate that the problem of the weak in intellect is the most pressing of social problems. It lies at the root of all the others, and, until dealt with in a rational manner, there is little hope of bettering the general condition of our people. Let me name some of the evils to be combated.

To begin at the beginning, there is the high rate of infantile mortality. There is the question of child-neglect and underfeeding; of drink; of unemployment; of consumption; of purposeless crime—assault, murder, theft (which, when it occurs among the rich, we call kleptomania).

Now infantile mortality is a question which for some time has been thought suitable to be dealt with in our schools; we are to teach the girls how to tend and care for infants, and we hope that this may lead to a lessening of the sickness and neglect that kill our little ones. But we have not yet reached the main cause of excessive infantile mortality. It is, in great measure, due to deterioration of individual families, not to deterioration of the race as a whole. That is another question.

I have been tabulating the particulars of one thousand cases of feeble-minded children, and nothing has been more forcibly brought out than the very large families which are found where there is a heritage of weakness of intellect, that is, where the family stock has degenerated; and amongst these large families the very large proportion of early deaths. Taking the first hundred of these thousand cases, they contributed 149 deaths of children; also twenty-six, or rather more than one-eighth of the parents were dead. Moreover, of the children, nine were single children, so that the deaths of children were confined to ninety-one families.

In these families there were fifty-one other persons who were either mentally afflicted or epileptic. So that in the hundred families there were 151 persons who were either insane or weak-minded or epileptic, and, in the same hundred families, there were 175 premature deaths.

If, however, we select our families we can find one hundred families with one hundred defective children at least, and 547 deaths of young children.

This is scarcely to be wondered at when we find such families as this:

Mother twice married, nineteen children by her first husband, two by her second. All the children dead except two ; one of those an idiot. The woman is not reported to be weak of intellect, but her sister is an idiot. Amongst these deaths there are a great many accidents, generally scalding or burning.

The infantile death-rate is everywhere in England lower amongst the Jews than amongst the Christians, and that the proportion of weak-minded children is also lower amongst the Jews. When we lament over the number of deaths of young children, we may take a little comfort from these facts. It would be a very doubtful advantage if more of the children of this type reached maturity.

Coming next to the question of child-neglect and under-feeding, there is an unfortunate tendency to put the cart before the horse. People have been anxious to prove that want of food will make a defective child out of a normal one, or that underfeeding in the parents will produce mental defect in the child. As to the latter argument, these children are found in as great numbers amongst the very rich as amongst the very poor. As to the former, I am permitted to quote from a letter written to me by Professor Clifford Allbutt, who speaks with a weight of authority which I can only look up to and reverence. "That they (feeble-minded children) can be manufactured by physical deterioration acting upon normal minds is ridiculous ; no such case can be produced. If a slightly feeble-minded child be made worse by bad conditions, recovery under normal conditions to such capacity as he was born with will ensue. By breeding only is this variety of man continued ; one cannot say, if the idiot variety were eliminated by detention, that this variety or some other would not spontaneously reappear. I dare say it might. But I am sure we could not manufacture it by mere *miseria*."

The fact is underfed children are dull and stupid, and so are children who have not enough sleep, and so are children who are overfed. But they are not, because of their under-feeding or over-feeding, defective in intellect.

So when we come to the question of drink. For generations good people have been trying to kill this evil habit of excess. Every bad feature of our lives has been put down to it. And now, when more attention is being paid to the lack of mind in our children, there is a jealous desire on the part of the total-abstainers to make out that this also is the result of the use of intoxicating liquor. It is a very serious mistake, for we shall not cure people of a trouble they have by treating them for one they have not. Drink is the result and not a cause of weakness of intellect. This is not a question now of opinion but of statistics. Dr. Branthwaite, the inspector of inebriates' homes, tells us that 62 to 63 per cent. of all the cases committed to these homes are insane or mentally defective, a majority coming under the latter heading. He goes on to say that "mental incompetence, stopping short of insanity, holds a prominent position in the causation of habitual drunkenness," and that it is "morally certain that the large majority of the cases included in the defective section of the table (1124) started life handicapped by weakness."

Dr. Gill, the medical director of the Langho Inebriates Reformatory, tells us that 60 per cent. of those committed to this place are insane or mentally defective, and, quoting Dr. Branthwaite's statement, goes on

to say that these figures are of great practical importance, and reveal a state of affairs that was never even suspected. He is mistaken there; some of us have, for a long time, more than suspected this state of affairs. It has been forced upon us in the course of our work. To begin with, there is no reason, so far as I can obtain information, why the children of drunkards should be more likely to be mentally defective than the children of sober people. As a matter of fact they are not so. To go back for a moment to that first hundred cases of which I spoke, I find that in fifty-six the parents of the children concerned were definitely sober; in thirteen they were definitely, one or both of them, drunken; in twenty-nine there was no definite history either way. Moreover, it is quite easy to keep the weak in mind from drinking; they have not the craving for drink which makes a man sacrifice everything to obtain it. They drink only as they do every other bad and foolish thing which comes in their way, because it is easier to do it than to leave it undone. Dr. Gill is right when he says there is no road to sobriety for the mentally defective drunkard except that which leads to permanent detention. And both Dr. Gill and Dr. Branthwaite lay stress on this: these mentally weak inebriates were mentally weak before they were drunken. "Mental defectives," says Dr. Gill, "are not naturally drunkards, but have acquired the habit as the result of environment." And yet we persist in exposing them to the environment which is most likely to lead to the formation of this vicious habit; and then, in the most expensive way, we set ourselves to cure them of the habit, and return them to the environment which has led to its formation—a folly to laugh over, were it not so sad and bitter in its results.

No more important contribution to our knowledge on the subject has for a long time been made than this definite evidence put forward by acknowledged experts that drunkenness is a symptom and not a cause of weakness of mind.

To come to the question of unemployment. I think, when we consider the number of mentally defective children who are year by year leaving our special schools (eight hundred in one year in London only), we shall not need much convincing that they form a very large proportion of the unemployed. Our experience in Manchester is that they can often get work when they leave school, but that they keep it only for a short time. The best of them keep their places only so long as they can be considered boys; when it comes to earning a man's wages, they are turned adrift. Nobody wants them. Others get place after place, but are rarely in employment for any length of time; their eccentricities are too numerous and often too dangerous for any employer to put up with. Of course it is obvious that a constant supply of unskilled labour of this kind tends to keep the rate of wages for all unskilled labour very low.

A great deal might be done to improve the status of many of the children on leaving school by the establishment of trade schools, in accordance with the suggestion of Dr. Henry Ashby, where they might be trained to some one useful occupation. Many of them are capable of profiting by such training, but even then, it would be necessary, in the majority of cases, to arrange for their carrying on their trade in seclusion and safety.

With regard to consumption, there is no evidence that it is a cause of

weakness of intellect; on the contrary, many consumptive people are particularly bright and clever. What there is evidence of is this. Where there is deterioration of the family stock, it may show itself in various ways; one member of a family may take to drink, a second may be consumptive, and a third may be weak of intellect.

The weak mind, epilepsy, and deaf-mutism seem to be interchangeable troubles, often occurring in different members of the same family, or in succeeding generations.

It is certain that the weak in mind are generally weak in body also, and are therefore particularly prone to fall victims to consumption. Pneumonia also is a disease to which many of them succumb; but we do not therefore say that pneumonia in the parents is a cause of feebleness of mind in the children.

With regard to crimes of violence, theft, and so forth, the reason why the weak-minded are always committing them is not far to seek. These poor souls do not in any real sense possess themselves. They have not the will-power to protect themselves, either from the evils of the outer world or from the temptations of their own animal passions. They obey the next impulse, whether from within or from without; they would generally be put to it to explain why they have done anything that is wrong. Poor, puzzle-headed creatures, they move through life as in some miserable nightmare. To all of us birth happens and death happens; those of us who are sane know, whatever we may think, that between birth and death we have the power, to a great extent, of guiding our own lives. We have the choice between good and evil. To these less happy brethren of ours, not only do birth and death happen, but everything that comes between; their lives are one long happening. They find themselves, poor miserable little creatures (those of them that are not born to riches), full of aches and pains that are not the lot of normal children; they are mocked and tormented by their own passions and by other children. (Only this week a little girl slipped her hand into mine, and said, "They keep on calling me soft; I'm not soft, am I?") Then they reach adolescence, and they happen to grow up; very shortly parenthood happens; sometimes marriage has happened first, but that makes very little difference, except that, in the case of a man, his lot is bettered because he will have a woman to work for him and look after him. Apparently no man is so wanting in wit that he cannot find a wife. There is an Audrey for every Touchstone. One thing happens with almost unfailing regularity—they happen to be unemployed; very frequently they happen to be criminals. Fortunately for all concerned they generally happen to die young, but they will leave behind them a large family, many of whom will have happened to die, but some of whom, with extraordinary tenacity of life, will have happened to live to carry on the horrible tradition.

Let us remember that, from the point of view of the mischief done to the race, it is much the same whether the case be that of a hooligan on the streets or of a marquis spending an enormous fortune on neckties, waistcoats and jewellery. These people are the failures of life, and they are a dead weight upon the successes. But it is not only that these people are themselves failures, they are almost all at large and at liberty to take upon themselves the duties and responsibilities of parenthood; and it is certain that they hand on their incapacity to some at least of

their descendants, often in an aggravated form. Nor does it make against my argument that some of the children of weak-minded persons may not themselves be weak-minded. They are of degenerate stock; the trouble may be latent in them, but it will crop out again and the world will be the worse for their existence.

For, whatever alternative terms we may employ for this terrible affliction, one thing is sure—it is hereditary. Suppose that it begins in any particular case as a reversion, still it is hereditary. Suppose that it is the marriage of near relations which has brought about this reversion, it will be handed on. Suppose that it is the result of an abused life, the children will suffer for it. It is only when it is the result of an accident to the individual that it cannot be transmitted, and fortunately the cases of accident are generally very severe and cannot be easily mistaken.

And here I would like to remark that we must guard ourselves against accepting histories of accident as causative of this trouble without sufficient evidence. Putting aside the obviously ridiculous stories that we hear (as that a child got a button up its nose and it settled on its spine and caused an abscess, which produced epilepsy), there is a natural tendency to put weakness of intellect and epilepsy down to anything but the real cause. It is often only after two or three interviews and patient questioning that we get at the real facts of the case and find that there is a notable degeneration of the family stock, showing itself in different ways in different members.

It is this feature of the question which makes it a public duty to take charge of the feeble-minded from the very beginning in such a way that they cannot harm themselves or other people. It is a duty which we owe to posterity; for we have interfered with the laws of natural selection in this matter and are responsible.

Archdall Reid, in a book which deserves to be better known than it is, says, "Until very recently, in the majority of cases, the unfortunate lunatic was placed under conditions which insured death or permanent insanity. From the very moment that his mental unsoundness declared itself he ceased to have offspring. The natural selection of the sane was therefore very stringent. For some generations, however, lunatics have been treated with great humanity and skill. Beyond all classes of the community, they are watched over by the State. Men of sound mind, but suffering from bodily illness, may perish in the slums for lack of proper care and nourishment, but the nsane are removed to special sanatoria, where, without expense to themselves, they receive food and lodging, and are placed under the care of trained nurses and medical specialists, over whom, in turn, the Commissioners in Lunacy exercise a jealous supervision. As a consequence, the lunatic frequently recovers and is restored to his family, and the right to have as many children as other people."

What Dr. Reid says of the lunatic applies with even more force to the merely weak-minded, for in his case the right to be a father has never been denied. It is curious that, whilst the proportion of men to women of this class is three to two, nearly all efforts have been directed towards caring for the women; and yet the man is at least as dangerous as the woman and very nearly as suffering. We see the children of the feeble-minded woman. Who counts the children of the feeble-minded man?

Who follows the sufferings of the lad, who, leaving school without having acquired either knowledge or self-control, finds himself almost at once either a criminal or one of the unemployed ? The fact is that, at every crisis of her career, the woman is more likely to come under notice than the man.

In the case of these people, whose mental weakness does not show itself in such a striking and obvious way as to cause them to be put under certificate, they are cared for by the public because they are incapable in every walk of life. They are drunkards ; they neglect their children ; they are criminals ; they are paupers ; and all our charitable efforts are directed towards making it easy for them to be what they are. In other words, we treat the symptoms of the disease instead of the disease itself. If a man cannot take care of his family we do not prevent his having a family to take care of, we take care of it for him ; if he cannot make provision for himself and becomes a pauper, we make provision for him in that state of life, we do not prevent his dropping into that state, and so on ; and we entirely overlook the fact that the trouble from which he is suffering is hereditary and incurable. We so interfere with his life as to make it possible for the trouble to be handed on. In fact, for generations past, we have chosen to play the part of Providence to our weaklings, sometimes a benevolent Providence, but almost invariably a foolish one. And of late it has always been assumed that, at all cost, all persons must be kept alive as long as possible.

I do not propose to combat that proposition ; but if we are determined to keep alive the weaklings of our race, it must be done in such a way as will not only give them a happy existence, but also a harmless one. If we will play Providence we must be wise as well as pitiful, and we must remember that if the ne'er-do-weels of society have their rights, so have the well-doers.

If it be argued that this would apply to the weak in body as well as the weak in mind, the answer is that the weak in body are not afflicted with that lack of will-power that makes the weak in mind such a terrible danger to themselves and everybody else. For instance, there is no reason why a consumptive person should not order his life from the highest motives.

To deliberately make it more easy for degenerates to survive without securing that they shall survive in circumstances which make them harmless, is a piece of folly which approaches near to wickedness. And so we come to our special schools. I think no one will deny that they are a step in the right direction. To leave the feeble-minded in the ordinary schools is a waste both of them and of their teachers. It is a terrible waste of money also. Looking through my thousand cases, I think nothing is more significant than the frequency with which we find the entry, made on the child's admission to the special class, " Six years at school," " Eight years at school," even " Ten years at school " !

Can anything be more stupid than to pay a teacher for ten years to teach a boy what it is absolutely impossible for him to learn ? We do not struggle to teach our blind to see ; we try to substitute the use of another sense for that of sight. The only rational plan with our weak-minded, our " blind in mind," is to teach them useful habits of imitation in lieu of the habits of reason that serve the ordinary mind.

So far there has been too much assumption that this weakness was a

curable evil, and could be set right by differential treatment. It is because of this that our really splendid special schools have, to a great extent, been wasted. There are no proper institutions to take up the work where they leave it off. The best special school teacher I know is half breaking her heart because she sees her boys and girls, whom she has trained so lovingly and patiently, drifting away, and, in a few years' time, scarcely better than they were when she took them in hand. In that school we have two generations at the same time—a child and her aunt. And it would be so easy to make the proper provision. I am a manager of a residential special school where we take in the children before the age of thirteen and keep them for the rest of their lives. Some of our boys and girls are now over eighteen years of age, and have never been a night off the place since they first went there. In all, we have now 147 boys and girls in residence, varying from six years old to eighteen. If we had legal powers to detain these children we should not need to be so particular about the age at which we admit them. As it is, we feel that we must have three or four years in which to accustom them to our ways and habits; we find that this is not difficult if we take them in young. As it may be supposed, we have been very anxious indeed as to what would happen when our boys, in particular, grew up. Our theory was that, if no one put thoughts of leaving into their minds, they would not want to leave. As a rule, there are no ideas in the minds of the weak-minded except those which are put there. We planned to make their minds exactly what we wished them to be. It is remarkable to note how our theories are working out. So far, our young men are quite contented to stay with us and work on the farm and in the garden. In this way they do a good deal towards their own support, though it must not be supposed that they will ever entirely keep themselves. Even for the very best there will always be the cost of supervision. But it is surprising to find how they have answered to our expectations. Of course we have been very careful to make them understand what it is that we do expect. We are very well aware that their good habits are only habits of imitation and not habits of reason at all. They would soon be lost and replaced by other habits of imitation were they to come into contact with the outer world. The same may be said of the girls, who are working most successfully in the houses and in the laundry. In some respects they give us more trouble than the boys as they grow up. They are more erratic in their ways and more delicate; so that we cannot, as we do with a naughty boy, give them more work to do to work the naughtiness off. Still, with them also, it is only a question of taking infinite pains. We shall be able, even without the legal power of detention, to keep the majority of both boys and girls safe and happy for life. But if we had the power of detention we could keep everyone, and that without any anxiety to ourselves. What I would plead for is a complete system of care for all these children—for children they are to the end of their days. I would ask first that the special schools should be made universal; that the system of teaching in them should be, to some extent, revised, and that it should be made almost entirely a training in manual work, manners, and morals. Every such school should be under the charge, not only of a skilled and devoted teacher—most of them are already in such charge—but that they should all be under the supervision of a skilled medical man. There should be in connection with every special school a residential

special school or colony. Every child should be dealt with by the doctor, not on the gronnd of its attainments, but on the ground of its mental condition; and for every child whom the doctor cannot certify, at the age of thirteen or fourteen, that it is a normal child, a place in a residential school should be found. Here it should remain on a renewable certificate, for life. If this plan were carried out we should go a long way to stamping out this evil from amongst us. And the plan would not be any extra expense to the community; on the contrary, it would be a saving of expense; it would cost much less to keep these people in this way than to keep them in workhouses and gaols. And at first the expense of the special day-classes would be much reduced; in each town a smaller number of them would suffice, as the children would leave them at the age of fourteen or younger, instead of at the age of sixteen as now. As it is, it is impossible, in many cases, to keep the elder children, especially the boys, up to the age of sixteen. They cease to be safe companions for the younger children. It might very well be that a trade school should be the intermediate step between the special school and the colony. This would have the advantage of giving a further opportunity to those children whom the doctor might consider normal, except in the power of acquiring learning. There are such children, and perhaps we shall presently discover the folly of attempting to make them learn from books and concentrate our attention on giving them the means of earning a livelihood. All these things are coming slowly into our view. We are learning from our mistakes.

But we must grasp the idea that it is a disgrace to our nation that it should be possible for anyone to see the picture with which I began my paper to-day. Those pauper imbeciles must become a procession of the past. It must no longer be possible for men and women to be in such a state of degradation. And we can only put a stop to it by beginning at the beginning. We must take charge of every weak-minded child and deal with it wisely and kindly from infancy to death.

LES ENFANTS ANORMAUX DES ÉCOLES A BORDEAUX.

Par Dr. C. SIGALAS,

Professeur à la Faculté de Médecine de Bordeaux.

EN 1903 M. le Dr. Jacquin, médecin-adjoint de l'Asile d'aliénés de Bordeaux, présenta au Congrès national d'assistance publique et de bienfaisance privée un rapport remarquable sur l'enfance intellectuellement anormale.

Le 15 décembre 1904, il fit aux instituteurs et aux institutrices de la Gironde une conférence sur "l'assistance et le traitement des enfants arriérés, et en particulier des arriérés des écoles." A la suite fut créée, à l'hôpital suburbain du Bouscat, une consultation pour anormaux psychiques des écoles de la banlieue.

Enfin, le 20 décembre 1905, en inaugurant, comme président la

section d'hygiène scolaire du Comité girondin de l'alliance d'hygiène sociale, M. le Recteur Thamin, développant le programme des travaux dont la section devrait s'occuper, proposa de placer en tête de ce programme la question de l'éducation des enfants anormaux.

Parmi les solutions proposées : *internats, externats, classes spéciales,* après l'exposé des avantages et des inconvénients présentés par chacune d'elles, il préconisa surtout la dernière, qui, quoique constituant une solution moins parfaite, était plus facile à organiser immédiatement. Cette solution étant adoptée, concluait M. le Recteur Thamin, "il y a lieu de procéder à l'organisation, en commençant par le recensement des anormaux d'école, qui, une fois désignés, avec le concours des médecins et des pédagogues, seront envoyés dans les classes spéciales qu'il s'agit de faire créer."

Dès ce moment et sous cette impulsion, avec le concours de M. Alliaud, inspecteur d'académie, et de M. Rotgès, inspecteur primaire, le travail effectif commença.

M. le Dr. Régis, professeur de psychiatrie à la Faculté de Médecine, dont la science et le dévouement sont au-dessus de tout éloge, fut chargé de l'organisation et de la direction de ce service.

Avec lui, MM. les Drs. Abadie, Auglade, Cruchet, Dumora, Galtier, Jacquin, Lalanne, Lande fils, firent, aidés des médecins-inspecteurs et des directeurs et directrices d'écoles, un recensement méthodique des anormaux psychiques. Les résultats de cette étude sont consignés dans le rapport remarquable de M. le professeur-agrégé Abadie,[1] " qui établit que dans les écoles de garçons de la ville de Bordeaux, fréquentées par 8,735 enfants, 452, soit 5·17 %, peuvent être considérés comme anormaux d'école.

Sur ces bases, M. le Docteur Régis a établi l'économie complète du projet d'un service pour l'éducation et l'instruction de ces anormaux, avec quatre écoles spéciales comprenant chacune huit classes de vingt-cinq élèves environ, entre lesquelles les élèves seraient répartis par un médecin spécialiste et confiés à des maîtres au courant de la pédagogie des anormaux.

Mais, en attendant les résultats du recensement des anormaux dans les écoles de filles, recensement aujourd'hui terminé et qui a donné sensiblement les mêmes résultats numériques que celui des garçons, et en attendant une organisation plus complète nécessitant des ressources nouvelles, *deux classes spéciales d'anormaux* ont été créées par l'inspection académique avec le concours de la ville et ont été ouvertes le 1er mai 1907.

Elles comprennent : l'une, quinze élèves (école de la rue Montgolfier), l'autre, vingt (école de la rue St. Charles).

C'est M. le Dr. Régis qui a désigné les enfants qui composent ces deux classes et il y a lieu de signaler qu'on n'a éprouvé aucune objection de la part des familles pour faire entrer leurs enfants arriérés dans ces classes spéciales. Les maîtres, choisis parmi ceux qui présentaient au plus haut degré la douceur, la bonté, l'ascendant moral—toutes les qualités requises pour cette tâche délicate—ont été envoyés pendant quelques jours à Paris pour se mettre au courant de la pédagogie spéciale des arriérés, à l'institut des sourds-muets d'Asnières et à la fondation Vallié (Dr. Bourneville). De plus, M. le Dr. Régis continue à les diriger ; il établit la feuille médicale

[1] *Annales du Comité girondin de l'alliance d'hygiène sociale,* 1905 ; voir aussi la conférence de M. Émile Martin, "Avenir de la Mutualité," 1908.

de chaque élève, recueille les observations des maîtres, surveille médicalement l'emploi du temps et les programmes, indique les exercices physiques les plus aptes à chaque tempérament, etc.

Au point de vue de l'emploi du temps, on a réalisé la méthode médico-pédagogique qui convient aux anormaux : leçons courtes (quinze minutes au maximum) entrecoupés de récréations, d'exercices physiques,d'exercices d'imitation, de chant, de travail manuel.

La discipline, tout en restant douce et affectueuse, devient progressivement ferme. On agit le mieux sur les anormaux : quand ils font bien en multipliant les récompenses, bons points, images, projections ; quand ils font mal, en les privant de récompense. Les punitions, à proprement parler, sont très rares.

Comme *éducation physique*, on fait faire aux anormaux de la gymnastique, des exercices de respiration, d'articulation, du chant. Tous les élèves ont un goût très prononcé pour le chant et presque tous ont la voix juste, comme l'ont signalé les deux maîtres chargés des classes.

Pour l'éducation intellectuelle, les anormaux étant tous incapables d'attention, c'est surtout ce pouvoir d'attention que les maîtres s'efforcent de développer, pour obtenir ensuite d'eux la faculté d'observation, puis la réflexion et le jugement. Pour cela, on a recours à l'enseignement par l'aspect : leçons de choses, musée scolaire, gravures, dessins, objets usuels, etc.—permettant de présenter l'idée sous la forme la plus simple et la plus concrète possible. Au point de vue moral, on doit s'attacher surtout au développement des sentiments affectifs.

Et maintenant, messieurs, je vous demande la permission de citer textuellement les conclusions du rapport de M. l'inspecteur d'Académie Alliaud, relatives aux résultats obtenus à Bordeaux.

"Les résultats sont *réels*. Il est certain que les élèves de ces deux classes travaillent avec goût, qu'ils font des efforts pour se soumettre à une discipline et pour se rendre maîtres d'eux-mêmes ; qu'ils aiment l'école et qu'ils y viennent régulièrement, alors qu'autrefois ils vagabondaient dans les rues de Bordeaux trois à quatre jours par semaine.

"Au point de vue intellectuel, les progrès sont marqués. Il est certain aussi que les familles intéressées ont fait un très bon accueil à ce nouvel enseignement, puisque des parents sollicitent d'eux-mêmes l'admission de leurs enfants dans les classes spéciales. D'autre part, des témoignages de satisfaction sont journellement adressés aux maîtres par les familles pour les résultats déjà obtenus, au point de vue de la conduite, comme à celui du travail et du progrès.

"Quant aux maîtres eux-mêmes, un peu découragés au début devant la grandeur, la délicatesse et les difficultés de la tâche qu'ils avaient acceptée, ils sont aujourd'hui pleins de confiance dans l'avenir, et leur zèle s'est communiqué à d'autres qui sont tout prêts à se charger de la même mission."

THE CONDITIONS OF HEALTH OF THE BACKWARD CHILDREN IN THE ELEMENTARY SCHOOLS OF COPENHAGEN.

By Paul Hertz, M.D.,
School Doctor and Lecturer in School Hygiene.

In the elementary schools of the Municipality of Copenhagen auxiliary classes are established for those children who, either for want of capacity or owing to defective speech and defective organs of senses, after *two years'* teaching in the lowest class, are unable to satisfy the demands made of the average scholars when leaving this class. Admission to these classes will be at the age of eight–nine years. The children leave school at the age of fourteen, as the other children do.

In the school of which I am the school doctor there are eight such classes, with in all 135 pupils. I have endeavoured to determine the conditions which in every individual child have retarded its mental development, examining both its state of health and its capacity, and obtaining information with regard to its home. Of the 135 children, four had to be eliminated as being idiots, three were continually ill and absent during my examination. The examination was made in April and May this year in the presence of the class-teacher, who gave me his opinion of the capacity of the child and information about his standpoint, behaviour and mental stamp.

I tried the children in reading, arithmetic, re-telling of a short tale, and in their conception of some simple everyday occurrence, the whole adapted to the level of the class and the age of the child. I valued the result in relation to what is demanded of the child of the same age of the normal school. Besides the examination of the child's health, senses and nutrition, it was weighed and measured. One hundred and twenty-seven children, eighty boys and forty-seven girls, of the following ages, were examined :—

	Years	8	9	10	11	12	13	14	Total.
Boys	.. ..	6	20	14	14	12	10	4	80
Girls	.. ..	7	10	8	12	5	5	—	47

Forty-nine only showed no essential morbidity or bodily abnormalities, but with regard to twenty-three of these forty-nine there were great poverty or other bad conditions at home, so that many of these children were wanting in weight or very much neglected.

On the whole, the homes of the pupils of the auxiliary classes are very often very bad.

Great poverty	19
,, ,, and father a drinker	6
,, ,, ,, ,, ,, child neglected ..	4
Neglect from home	4
,, ,, ,, father a drinker	1
,, ,, ,, and poverty	5
Father a drinker	7
Mother left home	2
Father left home	2
Sickly mother	1

Fourteen children have factory or other extra work. With the other seventy-eight children there were morbid conditions, partly local affections, especially of the ears and the throat, partly constitutional diseases. In many cases both constitutional and local affections are found. Many children, moreover, are strongly marked by pauperism and other misery. The affections found in the 127 children were—

Tubercular bone disease	2
Scrofula	4
Lung catarrh	2
Digestive troubles or headaches	4
Rheumatic, heart or choreic affections	3
Curvature of the spine	6
Spinal palsy	2
Incontinence of urine	2
Fidgets (reminiscent of chorea)	12
Defective hearing	32
Suppurative otitis	25
Adenoids	31
Enlarged tonsils	54
Various eye troubles	23
Defects of speech	3

The most frequent diseases are diseases of the ear (twenty-five) and adenoid vegetations (thirty-one). The latter are rather equally distributed over the different ages and sexes; in most cases (twenty-two) they have caused more or less hardness of hearing, and the greater number of destructive inflammations of the middle ear are due to them. The speech has nearly always (twenty-six cases) the "closed nasal" character. I am not able to state the number of cases in which the vegetations have been operated, but no doubt the majority of cases have been operated, as Copenhagen offers great facilities in that respect. Only six of the children whose operations I am sure of are completely cured. In the majority of cases the operation, even repeated, has neither improved speech nor hearing, nor closed the child's mouth, owing, perhaps, to want of after-treatment and relapsing catarrhs.

None of these children suffer from absolute deafness. The hearing was tried in all the children by a whispering voice in the length of the class-room (6–7 meters), and is classified as *good, medium* and *bad*. Hardness of hearing is found equally distributed over the different ages. *Medium hearing* is found twenty-one times, *bad hearing* eleven times, due nearly always to suppuration of both ears or destructive processes consequent on this affection, which was, moreover, found in seven children with medium or good hearing. This fact is due, no doubt, to the time of the examination, which took place in the warm spring, when the catarrhs of the respiratory system and the throat had ceased. An examination in the winter months had, no doubt, given a different result.

The ears of all 127 children are examined with the ear speculum, and it is worth noticing that only forty-six have quite normal membranes of the drum; in twenty-five suppuration or destructive processes of the middle ear are found; but in the rest (fifty-six) either one or both membranes were abnormal—either light redness or different kinds of irregularities, or signs of thickening or retraction. In most no sensible decrease of the hearing was noticed. It should be added that twenty-eight of the children whose membranes of the drum are quite natural belong to the groups that are free of other kinds of morbidity.

Closely connected with adenoid vegetations and ear diseases are overgrowth of the tonsils, which is found in fifty-four of these children. Besides the difficulties of speaking due to adenoid vegetations, nineteen cases of defective speech are found.

Stammering	3
Lisping	4
Bad articulation	3
Wheezing voice	2
Do not speak correctly	3

Two children had not learned how to speak correctly till very late.

Contrary to the frequency of ear-diseases, the abnormalities of sight and the affections of the eye are a great deal rarer among the laggards. The faults of refraction rarely attain any high degree, and as necessitous pupils are supplied on the school doctor's request, these faults are corrected by means of suitable glasses. One child is nearly blind owing to diffuse dimness of the cornea, another blind of an eye owing to closure of the pupil, and in one a central opacity in the cornea is found.

In face of the frequency of these morbid cases among the backward, the question arises whether their backwardness is due to want of mental capacity, or whether their bodily weaknesses and the miserable conditions of their lives are the main source. In the class-teacher's opinion one-half (sixty-five) of these children are wanting in mental capacity, nearly the other half is supposed to possess fairly good capacities (fifty-seven). A few (five) are supposed to have absolutely good capacities. But the mental trial I made myself did not always agree with the teachers' judgments, a fact which induced me further to look for the causes of backwardness.

My test was partly one of capacity (reading and arithmetic), partly one of conception (re-telling and general notions). As I always made the child render an account of what it read, and as the power of computation also bears witness to the mental level, the whole trial gave a rather reliable image of the capacities. I noted the results of the different trials by marks from $+3$ to -3, the former marking an entirely normal level and the latter complete incapacity in the trial. Thus I obtained, by summing up the marks of the four trials, a numerical measure of the capacities which could form a basis of comparison between the different groups of backward. Such a comparison would give an erroneous result, if the different ages were treated together as a whole, the defectives coming from the normal school quite ignorant and undeveloped, because the normal school cannot afford to give the time and special treatment they require. So they go down as a dead sediment at the teaching, and it generally lasts a couple of years till the instruction in the auxiliary classes gets hold of them. On the other side they often show a gratifying development during the last year's teaching in the auxiliary classes. During that period many of them also improve physically in a marvellous way. That is why I divided the laggards at the age of eleven into two nearly equal groups—sixty-five below and sixty-two above eleven years. Moreover, I have divided them into seven groups after their physical conditions, as shown by the table.

For each individual the average of the individual mark given was calculated, and the numbers of the table show the average of these marks in each group.

	Below 11 years.	Above 11 years.
1. Children who show no signs of morbidity ..	− 0·9	+ 2·45
2. Children who show no signs of morbidity but live under bad conditions at home ..	− 1·85	+ 1·45
3. Children suffering from constitutional diseases or affections depending on such, or from diseases influencing their general health	− 1·65	− 0·15
4. Children with adenoid vegetations without hardness of hearing	− 1·0	+ 0·5
5. Children with adenoid vegetations and hardness of hearing	− 2·6	+ 0·5
6. Children with hardness of hearing without adenoid vegetations (inflammation of the middle ear)..	− 2·1	− 0·5
7. Children with essential defects of sight ..	− 0·9	+ 2·6

Group 1 should be taken as a starting-point, as the pupils' level must be supposed to be proportionate to their capacity. There is no reason to think that the natural (latent) capacities of the other groups are essentially worse or better, and the actual lowering of the mental level must therefore be due to other circumstances than defective capacities.

The number of backward treated is, of course, too small to allow of a real statistical treatment of details. But the fact that these children's bodies show so many forms of morbidity and abnormality, and the frequency of the miserable conditions of their homes, compared with the above results of the mental trial, seem to show that the laggards' backwardness is due more to their physical weaknesses and morbidity than to defective mental capacity.

If I am right in this view, the teaching and the whole arrangement of auxiliary classes and schools should pay the greatest regard to the physical condition of these poor children. They should be under special medical observation, their sickliness should be medically treated, starved children should be fed, the appliances and premises of schools should be adapted in the best way, the school-day and the lessons should be short, the leisure hours should be frequent and long, in order to avoid fatiguing the laggards. The school ought to realise all this if it wants to see a satisfactory result of teaching in the auxiliary classes.

Prof. GIULIO FERRERI (Roma) observes that, from the tables exhibited and explained by Dr. Hertz, it is clearly shown that the educational question of feeble-minded children is connected in Denmark, as indeed everywhere, with a number of diseases, so much so as to make one think that, instead of providing schools, it would be well to provide hospitals.

Seeing that the percentage of defective children, with defects of speech and hearing and adenoid vegetations, is rather high, he desires some explanations on the following points :—

1. From the observations made there seems to be a relation of cause and effect between the defective speech and the hardness of hearing.

2. For the correction of the utterance of deficient children they provide in Copenhagen an appropriate oral education and specialist teachers.

3. In the frequent cases of adenoid vegetation (quite the contrary of what it happens in southern Europe), operations are advised, and, if so, with what results in respect to the hearing and the development of the intelligence of the patients.

Dr. SHUTTLEWORTH (London) confirmed, from his former experience as medical examiner of special schools, Mrs. Burgwin's statement as to the harm resulting from the neglect of parents to avail themselves of needful medical

and surgical aid for their children suffering from remediable affections of the eyes, ears, throat, and other organs having a direct influence upon the evolution of the intelligence. Such neglect was nothing less than criminal and ought to be punishable in the interests of the unfortunate children, just as the law now regarded as criminal the neglect to provide medical aid in the case of fatal physical illness, for surely the sacrifice of the mental life and health of a child was as culpable as the latter.

As regards the disparity of the incidence of mental defect in the two sexes, it seemed to be the universal experience that twice as many boys as girls were so affected. The explanation was not easy, but it had been suggested that the larger size of the male head rendered it more liable to injury from pressure during the process of parturition; and Dr. Warner had remarked that, although congenital defects were less common in the female sex, when they did occur they were of a more serious character than in the male.

Hon. Maude Stanley (Westminster) considered that the State should provide for the needs of defective children. Thought it impossible for parents of feeble-minded children to provide themselves for the children what is done for them in the special homes for feeble-minded. Philanthropic effort should be in every case a stepping-stone to legislation and the taking over of the duty by the State.

Experience of last fifty years was in this direction, as lodging-houses, baths and washhouses, evening classes, ragged schools, etc., first started by private individuals were now provided by the State or the municipality.

Mr. Macleod Yearsley (London) spoke from the possibly narrow view of a specialist. In a large clinic at the Royal Ear Hospital he saw numbers of poor children whose parents refused to allow them to have their adenoids removed or even their discharging ears attended to. He called to mind two cases of the latter in particular, one a boy, upon whom he was not allowed to operate until a cerebral abscess had resulted, and a girl, whose mother refused to accept advice until facial paralysis had appeared. Mr. Yearsley could not see how these cases of parental ignorance and indifference could be dealt with unless by special legislation, lectures to parents, or the appointment of special officers to deal with them.

BACKWARD CHILDREN.

By R. V. C. Ash, M.B., D.P.H., *Medical Inspector of Schools, Dunfermline,* and Isabella D. Cameron, M.D., D.P.H., *Assistant Medical Inspector of Schools, Dunfermline.*

(*Abstract.*)

Preparatory to a survey of backward children in Dunfermline schools, the teachers were asked to furnish a return of all the children who were a full year or more backward in schoolwork.

In Dunfermline children backward from any cause other than mental deficiency constitute 11 per cent. of the total school population. Those actually mentally deficient, taken as a separate class, account for ·6 per cent. of the total school population. As yet there are no special schools in Dunfermline for the mentally defectives, consequently such children merely mark time as to school work till such time as they attain the age of fourteen and leave school.

The classification of children backward from some cause other than mental enfeeblement was as follows :—

Natural Dulness	.. ..	58	per cent.
Physical Defects :—			
(1) General diseases	.. ..	5	,, ,,
(2) Special senses	.. ..	6	,, ,,
Social Defects	.. ..	4	,, ,,
Irregular Attendance :—			
Ill-health	.. ..	10	,, ,,
Intentional	.. ..	4	,, ,,
Migration	.. ..	5	,, ,,
Late enrolment	.. ..	8	,, ,,
		100	

The naturally dull, constituting 58 per cent. of these backward children, are quite unable to keep up with their normal fellows, and to prevent their becoming a drag on the class and a tax on the teacher they are either overdriven, or more frequently have to get on as best they can by their own efforts and such individual attention as a busy class teacher can allow them, to be passed over from year to year in promotion. Most do not reach further than Standard III. or IV., and then, having turned fourteen, promptly leave school, never having reached those classes which include manual instruction, and which would have given them some education of use to them in the occupations they ultimately drift into.

Children backward from physical defects were either cases of general affections or of deficiency of some special sense, usually of eyesight such as corneal disease, myopia or astigmatism of high degree; some were cases of well-marked deafness.

The influence of social defects as a cause of backwardness is not easy to estimate precisely. The term was used to include such things as bad environment, neglect and intemperance of parents, etc., as well as laziness and incorrigible idleness on the part of the children themselves. Others again of these children are probably affected by being compelled to do work out of school hours, most of them boys engaged in delivering milk, newspapers, etc., in early morning, and other work after school. One or two were engaged programme selling in the theatre, and so on, till late at night.

Irregular attendance accounts for a large proportion of backward children, at any rate in Dunfermline.

Intentional absence involves more especially older girls, kept at home because useful there. In other cases irregular attendance appears due directly to carelessness and neglect by parents.

Non-attendance or prolonged absence due to ill-health was ascribed to a variety of causes, not a few cases of absence for a year and more being due to intractable ringworm or tubercular disease, *e.g.*, of bones or joints.

The migratory tendencies of some families accounted for a considerable proportion of these backward children. Some of the children had been to as many as seven or eight different schools in as many years, with more or less prolonged intervals of total absence or very irregular attendance.

Postponed enrolment is given by many teachers as an increasing cause of backwardness in Dunfermline, owing to the increasing tendency,

since the age for leaving school was raised to fourteen, of putting off enrolment till six, seven, or even eight years of age. In Dunfermline during 1906, of 500 children joining the infant departments for the first time, 43 per cent. were aged five years, 40 per cent. aged six, 15 per cent. aged seven, and 2 per cent. aged eight.

As yet there is no provision in Dunfermline either of special schools for mentally defective children or of means for individual instruction of children merely backward. Theoretically the ideal method would seem to be the Mannheim system of Förderklassen, in which these exceptional children get instruction suited to their capabilities and circumstances, and in classes of appropriate proportions, instead of remaining in the ordinary classes, in which they derive little or no permanent benefit to themselves, and are only a drag on the class and a burden and tax on the teacher.

THE DIFFERENTIATION OF MENTALLY DEFICIENT CHILDREN.

By G. E. Shuttleworth, B.A., M.D., &c.

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I have been asked to address to this section a few remarks upon the differentiation of mentally deficient children in relation to the special modes of education officially recognised in England by the Act of 1899, but previously existing in Germany and Scandinavia, and more recently established in Belgium, Switzerland, Italy, and some other continental countries, as well as tentatively (in connection with day-schools) in the United States of America. As it is only of English methods (in the evolution of which it has been my lot to play some slight part) that I can profess practical knowledge, I trust that colleagues from abroad will regard my imperfect paper merely as an incentive to discussion on a more comprehensive basis.

Briefly stated, the history of the differentiation of mentally deficient children in England is as follows. During the last half of the nineteenth century efforts had been made to train children of varying degrees of defect of mental power in charitably-founded resident institutions under the designation of "idiots and imbeciles." Those responsible for the administration of the Lunacy Law had claimed these children as falling under its purview, and up to 1886 all had to be certified in the form required for the adult insane as "idiots" or "persons of unsound mind." The Education Act of 1870, which made compulsory the attendance at school of all children between five and fourteen, unless with reasonable excuse, brought to light many children mentally unfit for the ordinary school

curriculum. Some of these gravitated to institutions for imbeciles, at that time the only available training schools for defective children. In 1886 an Act was obtained by the authorities of these institutions relieving them from the vexatious forms of certificate previously required, and substituting a simple declaration of idiocy or imbecility existing from birth or from an early age. The term "imbecile" was in this Act ("Idiots Act, 1886") first legally recognised as applicable to mentally defective children, but its connotation not being defined, its application to individual cases has been left to the discretionary interpretation of each certifying practitioner. From 1889, when the term "feeble-minded," as distinguished from imbecile, was first officially recognised in the Report of the Royal Commission on the Blind, Deaf, and other children requiring special modes of education, much attention has been given to the subnormal and other exceptional children found in public elementary schools, and the "Report on the Scientific Study of the Mental and Physical Conditions of Childhood, based upon an examination of 100,000 Children," published in 1895 by a voluntary committee, in which Dr. Francis Warner took the leading part, marked an epoch in the physiological study of children of defective constitution with a view to their appropriate training. In 1892 special classes for the instruction of such children were opened by the school boards of Leicester and of London, and in 1896 a departmental committee was appointed by the Board of Education to investigate existing methods of dealing with defective children, and to report on the best means of discriminating as to those who required, and were fit to be taught in, special schools. Following their report, an Act of Parliament was passed in 1899 enabling (but not compelling) school authorities to make special arrangements for the examination and separate instruction of defective and epileptic children in England and Wales. About 180 centres of special instruction for defective children are in operation at the present time, in addition to four educational establishments for epileptics. About thirty of the above are for physically defective children only.

By section 1 of the Act school authorities are authorised to ascertain "what children in their district, not being imbecile and not being merely dull and backward, are defective; that is to say, what children, by reason of mental or physical defect, are incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but are not incapable by reason of such defect of receiving benefit from instruction in such special schools as are in this Act mentioned," and with that object "a certificate to that effect by a duly qualified practitioner, approved by the Education department (Board of Education), shall be required in each case." It also provides for the medical examination from time to time of children dealt with under the Act.

The form of certificate (as used in examinations for admission to special schools) prescribed by the Board of Education with regard to defective children runs as follows:—

"I ———, a duly qualified practitioner approved by the Board of Education, certify that the following children, not being imbecile and not being merely dull and backward, are, by reason of (1) mental or (2) physical defect, incapable of receiving proper benefit from the instruction of an ordinary public elementary school, but are not incapable, by reason of such defect, of receiving benefit from instruction in a certified special class or school."

The name, age and previous school of each child is set forth, and whether the defect is mental or physical, but no statement of the grounds upon which the medical practitioner bases the opinion in his certificate is required by the Board of Education, who, however, issued with their original circular to school authorities (*re* defective and epileptic children) a suggestion as to "form of medical report," including observations on—

1. *General aspect and expression.*
2. *Physical State.*—General health and nutrition. Form and size of head. Form of palate. Any physical or nervous peculiarities.
3. *Mental State.*—Response; slow or ready. Educational attainments, etc. Peculiarities.
4. *Diagnosis.*—Degree of mental defectiveness.
5. *General observations as to line of training indicated.*

Though this form of report does not appear to have been very widely adopted (and in some cases other forms have been drawn up), most medical officers make a note in the school-record book of the reasons on which they base their diagnosis. For myself, I first observe the child's aspect as a whole, his attitudes, gait and facial expression. I note also the condition of bodily growth and general development, of health and of nutrition. Then I look for special physical abnormalities, in form and size of head, in features, in sense organs, in teeth, tongue, palate and tonsils, noting particularly if there is evidence of post-nasal obstruction (from adenoids, etc.). The hand is carefully scrutinised both as to form and movement of the fingers; eye movements are also tested. Evidence of irregular nervous action—*e.g.*, in the frontals, the eyeballs, the facial muscles, and especially the hand balance, are also marked. Passing to the mental condition, one tries to put the child at his ease, and to ascertain by familiar conversation whether he is slow or ready—perhaps over-ready—in response, noticing incidentally defects in articulation. Then comes the consideration of educational capability and attainments, and in appraising the latter, age and opportunities of education must be, of course, taken into account. The experience of the teacher of the child in the ordinary school is in this connection most valuable, and his (or her) attendance at the examination, in addition to a written report, I regard as indispensable. The mother or father should also be present to give information as to habits and home life, and particulars of family history. The co-operation of doctor, teacher, and parent must indeed be secured, not only for purposes of discrimination, but to render the subsequent training of the mentally defective child as successful as possible.

Now comes the *crux* of the whole matter—the certificate, the form of which certainly invites criticism. In it we have to assert that the pupil is not *merely* dull and backward; and that, in practice, I have interpreted as meaning that the dullness is not merely the result of unfavourable surroundings, or the backwardness due simply to neglect, but that there exists at least some degree of mental disability, due to inherent defect, which would incapacitate the child from benefiting by instruction in an ordinary elementary school. In my view, idiocy, imbecility and feeble-mindedness are but three gradations of mental defect (from below up-

wards), which shade into each other and have no sharp dividing line. Consequently, in asserting that the child is not imbecile, different standards will present themselves to different medical examiners, and, for my own part, I must confess that considerations of practical expediency rather than of exact scientific differentiation are apt to influence my decision in this matter. Not only the mental status, but habits and conduct have to be taken into account in deciding whether the child can fitly attend a special day-school with benefit to himself and consistently with the comfort of the other pupils. If the case be one in which much nursing care is required, it seems to me that the organisation of the special class—primarily for instruction—will not suffice, and such a case had better be relegated to a resident institution for imbeciles. It is a mistake, in my opinion, to pass as fit for special classes children of very low mental grade, who are not likely to benefit by instruction there, on the plea I have sometimes heard urged, that "it is well to keep the poor children out of the streets." Special classes are a portion of the State educational machinery, and are an expensive charge upon the public funds, and their objects will be discredited if unimprovable children are allowed to form any considerable percentage of the pupils. A period of probation may be necessary in some doubtful cases, but those proved incapable should not be allowed to remain. On the other hand, I think it is quite legitimate to use the special classes as beneficent havens of rest for those incapacitated by temporary nervous stress from keeping pace with the curriculum of the ordinary school. I allude to children debilitated by exhausting illnesses, suffering from nervous debility or tendency to chorea, etc., who, after a period of considerately gentle education in the special school, such as their condition calls for, are enabled to again take their place in the standards. Such may be considered as suffering from, at any rate, a transient degree of defect (mental or physical), rendering them incapable of benefit from instruction in the ordinary public elementary school.

Children of the morally defective type are, in my opinion, eminently unsuitable for the special day-school. Their moral obliquity renders them peculiarly harmful associates for those of weak and simple mind; and though I admit the advantage to the former of being in small classes, and so getting more of the teachers' attention than is possible in the ordinary elementary school, it seems to me it is unjustifiable to class them as merely mentally defective; indeed, they are often found to possess considerable facility for acquiring knowledge, only to be turned, alas! to evil uses. Such children especially require to be early in life withdrawn from city haunts, and their best chance of benefit is in hard work in an industrial colony, with rural environment and wholesome moral influences.

There is a tendency in some quarters to regard the special school as a "dumping ground" for all the undesirables in ordinary schools. The medical examiner needs to be on his guard to differentiate between mental defect and mere moral perversity; and it is at times no easy matter to determine where badness ends and madness begins. I am old-fashioned enough to think that in certain cases the excessive mildness of modern discipline in elementary schools is not an unmixed blessing, and that so-called "incorrigibles" are sometimes children who have not been adequately corrected in early life. Moreover, I apprehend that we

have not yet arrived at finality in the classification of children in our common schools, and am inclined to agree with Dr. Kerr, the able and experienced medical officer to the Education Committee of the London County Council, that in addition to ordinary and special schools there is room (in large educational centres, at any rate) for a *tertium quid* in the shape of "intermediate" schools. In these schools the goal of literary attainment might be placed at Standard IV., while more attention could be given to physical and manual training and instruction in the concrete. Thus, children who are merely dull and backward, rather than essentially mentally defective, would have the benefit of an education adapted to their humble abilities, and be equipped for a useful if lowly walk in life. If such schools were established they might appropriately be used by those labouring under partial incapacities, such as the subjects of word-blindness, word-deafness, the slighter forms of sensorial defect, and some of the nervous affections (for example, choreic tendencies), to which I have alluded, as affording justification for admission to special schools under existing circumstances.

In conclusion, I may very briefly refer to the administrative differentiation of mentally defective children which the experience of the special schools has shown to be desirable. Mixed classes of boys and girls up to sixteen years of age, under female teachers, have sometimes presented practical difficulties as regards association of the sexes when the age of puberty has been reached. Moreover, after fourteen years of age specialisation in employments appropriate to either sex can with greater facility be carried out in separate school establishments, and the experiment has been tried in London of a few centres of practical instruction for elder boys and girls respectively, those for the former being in charge of men teachers skilled in technical training. But, after all, the most important differentiation in the treatment of mentally deficient children would seem to be the improvement of their environment when out of school. Existing home conditions unfortunately militate in a vast number of cases against the amelioration springing from a few hours' special instruction each day at school, and the establishment of residential schools, such as those at Sandle Bridge, Cheshire, and a few others founded by private benevolence, is a development contemplated in the Act of 1899, but as yet in a very imperfect and embryonic stage. For defective children in sparsely populated rural districts residential schools are clearly a necessity, for obviously special instruction cannot be given in each village school. The National Association for the Feeble-minded hope, as soon as funds permit, to provide residential schools for such in connection with their colony scheme, which will also afford the means of life-long employment, under supervision, to those requiring it. The subject of after-care, so essential as supplementary to special education, is too extensive to be discussed in this paper, and it must suffice to say that residential schools in connection with a permanent colony would seem to furnish the most satisfactory solution of its problems.

Miss NETTIE ADLER, L.C.C. : Are residential homes and custodial colonies necessary for all types of mentally deficient children ? It has been found by inquiry that about one-third of the children leaving mentally deficient schools could become self-supporting at various kinds of manual work. She would like to know whether Dr. Shuttleworth held that this result was unsatisfactory, seeing that, if fairly self-supporting, they would probably marry.

Mr. E. A. H. JAY (Woolwich) inquired with regard to the one-third who obtain employment on leaving school, referred to by Miss Adler, how many would be found to be in satisfactory employment, say, at the age of twenty-one, and how many would then be found in prisons, workhouses, etc. He had always understood that mentally defective boys frequently obtained situations as van-boys, and such like places, only to give place to others after a few years, and that they were then quite unable to obtain work of any kind or to take their place in the battle of life.

Mrs. RUTH HOMAN (London): It is of primary importance that some measures should be taken to prevent the increase of mentally defective children. A register should be kept of all defective children from the time they are of school age and throughout their life. Each case should be dealt with according to its requirements; some it would be necessary to place in residential homes, others could be looked after by appointed persons in the district where they live. Many who could be taught trades would be to a great extent self-supporting, but they would still need supervision. At the present time our prisons, workhouses, infirmaries and asylums are largely filled by the mentally, physically and morally defective. It would be wiser and more economical for the State to spend money directly in checking the increase of this part of our population than in an expensive system of training for those now existing, without stopping their increase.

Dr. STANLEY B. ATKINSON, J.P. (Bow, E.): The artisan classes would not brook the well-intentioned dictates of the "superior" person in authority, as was evidenced by the lingering crusade against the unargued imposition of compulsory vaccination. At present, and probably from reasons similar to the above, it was futile in 1907 to discuss the surgical means which would, to some extent, solve the problem for the next generation. Thus opinion became unanimous on the desirability of the custodial segregation of the mentally unfit. Even behind the unanimity there was a dread of what was often felt to be an unbearable financial burden which would have to be borne by the mentally fit. A few months ago Sir Wm. Collins had, at the speaker's suggestion, moved for a parliamentary return as to the landed estates whose incomes went in relief of the poor of the metropolis (Charity Commission, May 8, 1907). Upon studying that return it was evident that many of the properties were eminently suitable for the purpose of the colonial settlement of the mentally defective. At present the former were let at a very nominal rent, it being no one's personal interest to secure the best price. If the suggestion were adopted that the education authority should rent such lands, the income would as heretofore revert to the metropolitan poor. Possibly a similar scheme could be arranged in the larger provincial centres of population. There was no doubt that these boys should become ploughmen and that these girls should become milkmaids; in this way, working up through corn and cream, they would at least make their own bread and butter and lead a much less parasitic existence than at present was their fate.

THE MENTALLY DEFECTIVE CHILD IN HIS RELATION TO HIS HOME AND TO INDUSTRY.

By Rev. HENRY ISELIN.

I DEAL in this paper with the mentally defective children of the poorest classes. My experience has been drawn from some of the worst districts in East London. The poorest home may be said to have greatest difficulty in providing for the needs and wants of children. It will be a home of one or two rooms, overcrowded, without sufficient

light, very often dirty, generally a spot where the child will desire to be as short a time as possible ; the child will go in to eat and sleep, he will pass his leisure in the street, and the doorstep of his house will be his peculiar playground. Sometimes clothing and food will not be forthcoming, and he relies on other agencies for these necessaries. His parents delegate his elder brothers and sisters or other children, to look after him. They have other interests ; their authority is, therefore, spasmodic and inefficient.

The needs and wants of children will assume greatest reality and will be most in evidence in the case of defectives ; and, as knowledge makes them more apparent, the school hastens to fill in the deficiency left by the home. In England there is a tendency to provide food and clothing for scholars. The source of supply is at present through voluntary agencies ; and if these necessaries be provided from the rates their provision will be justified most reasonably in the case of those children who are already handicapped by some mental or physical infirmity. I have said that parental authority is weak, and in the school of this type firmness is indispensable. There is, in consequence, a constant contrast between parental and school discipline. Thus, a teacher tells me that Monday morning is always his morning of most trouble ; that the mornings are always more difficult than the afternoons ; and that the first few days after the holidays must be given to recreating some small sense of obedience. In each case the cause is the same : there is no discipline at home. This contrast exists always in a poor district. It is to be deprecated in the case of the normal child. It is deplorable when the subject has the want of self-control which so often accompanies mental infirmity. Provision of food, clothes and boots may send the child from the school better fitted to stand the rigour of his home ; kindness, tenderness, firmness, charity only serve to bring out in greater relief the intensity of a need of which the child in his family finds no satisfaction. This, stated shortly, is the problem with which the first part of my paper is to deal.

The child, then, has been sent for examination with a view to being placed in a special school ; very often the parent is present, and the position is explained. However, she is still mystified, and finds her way to the school, and examines shyly the children, the furniture, and the teachers. The teacher explains once more " why my Molly ain't mad." She objects ; but perhaps some admission is drawn out that she was allowed her own way ever since she was a baby, " because we always said as Molly couldn't help it." So there arises in the mother's mind some partial satisfaction, though there will be no effort at home to make good the deficiency by private help or encouragement. I have in my mind a social worker who undertook to give to one such child private reading lessons, but he was only permitted to attend when his parents did not need him for trivial errands, while they presented the most futile excuses for not allowing the boy to take this, perhaps, the one great chance of his life. Moreover, there exist the vaguest theories of methods of education. One mother declaimed against the little progress made by her child. She was assured that he was learning to read rapidly ; but she still insisted that he did not know his letters because he could not repeat them from A to Z by rote. I am aware that there exists in London a higher recognition of parentage ; and I know of sacrifice made on behalf

of these unfortunates which are beyond all praise ; but in our poor district at least my description, I am afraid, is the rule rather than the exception. The child himself suffers severely from the taunts of his companions. Children have come to school daily in tears through the persecution and contempt of their friends. This contempt is expressed mildly when they speak of the school as the " silly school." Often far stronger epithets are used, and into the sensitive soul of the child the words cut like a knife ; and I fancy the children suffer an agony of self-contempt which it is given to few of us to bear.

The effect on the sufferer is deleterious. He will cease to expect anything from himself ; he has lost the respect of others, and will lose any respect he has for himself. That, I imagine, is inseparable from any scheme of segregation. Thus, one scholar will say constantly to his teacher, "You see, I cannot help doing as I do." And it is seen at its worst in the case of the defective boy, who, having committed larceny, said to the policeman who took him, " You cannot touch me, I am a special boy."

The special school is created to make good the deficiencies of the normal school by individual tuition, sympathy, and government. Teachers and managers soon discover that there are phases of subvention which seem to lie within its province. Children are required to take a bath at intervals, for cleanliness must be taught and inculcated forcibly to this class. Again, children come from a distance ; their fare must be provided, and, since they cannot go home to dinner, a hot meal is given them, for which they are expected to pay. Children have bad clothing and boots. There are charities which will make up what the home does not provide. These scholars have a compelling claim, more persistent and insistent than that of other children—and the claim of children is always compelling. The argument that free education implies free maintenance has been used so frequently as to become a commonplace. The desire to pass from theory to practice is strongest on behalf of these helpless children. One duty after another is taken from the parents ; the child, in consequence, looks everywhere except to his home for the provision of his wants. The school is everything ; home-ties are so weakened that they will snap at the first tension. The child is *déraciné*—uprooted from home, and rooted into nothing else.

Now this policy of half-measures cannot be regarded with anything except the gravest concern. If, really, the parents cannot or will not provide for their children weak, if there is no recognition of family duty or responsibility, it may be necessary to remove the child from those on whom the task of his welfare naturally devolves. But if this is necessary —and I would advocate it only in cases of the most flagrant neglect— the defaulting parent should pay, and pay heavily, to the State, which is relieving him in this way of his work. The home or custodial school should be treated as on a level with the industrial school for normal children, and no false sentiment of mistaken philanthropy should debar those who are interested in the welfare of the children from asserting that the onus of his upbringing rests primarily and especially, if not wholly, on the shoulders of those who are responsible for bringing him into the world.

But there is a deeper reason than this. The family is the true environment of the child ; it is the institution with the greatest influence for good or evil upon his nature. This is true in the fullest degree of the defective.

Nothing can take the place of what father and mother can do for him. If he is ever to grow up capable of taking his part as a citizen, it will be owing to the care he receives in his family and his home. Therefore all efforts which tend to tempt the parents to make fewer sacrifices for their unfortunate offspring are condemned. If their children need additional tuition and protection it is right that they should receive it; they have a claim on the community in virtue of their helplessness. The tuition can and should be given as perfectly as possible by the school; the protection is the duty primarily of the parents, and no one should dare to rob them of this privilege and responsibility.

And the social worker is best engaged by impressing on the parents their duty, by refusing to allow family responsibility to weaken by the provision of meals, clothing, or other necessaries for which the child should look from his home. An intimate knowledge of the condition of the poor teaches all who have eyes to see that family affection and coherence is strong and may be strengthened. The chief obstacles are shiftlessness and ignorance, and the firmness and wisdom of a friend will bring enlightenment and consistency; and this method alone will bring with it results lasting enough to sustain the mentally defective in the battle of life.

The mentally defective child is not permitted to leave school unless he has reached sixteen years of age; normal children may leave at fourteen. It is impossible to induce a normal child who lives in a poor street to stay at school one day after he is exempt. In the case of the mentally defective special exemption may be granted. Directly, therefore, the child is fourteen he wishes to do what all other children do, that is, to leave school. His parents are not unwilling, indeed they are decidedly on his side. They see before them a prospect of five, six, or even eight shillings addition to the family income. They know that he will have no difficulty in finding work; and even if they were willing to sacrifice themselves to this extent on his behalf, he has never done much at school, and will probably never do much more. The special school is a place not without some suspicion and contempt attached to it. Why not leave as soon as it is at all possible to do so?

These arguments are cogent, so cogent, indeed, that any compulsion on the side of keeping the child at school is exercised with much strain and stress. A child must have a labour certificate before he can go to work, otherwise his employer is liable to a fine of forty shillings or one month's imprisonment; but if the boy sells papers in the streets, or the girl minds her mother's or her mother's friend's baby, there is no employer upon whom the authorities can lay the blame. These two forms of industry are varieties of that casual employment which is the curse of the life of the poor. Public opinion and fashion among the poor is a strong motive for action, stronger than most of us who do not live so closely packed together are prepared to realise. There is no difficulty in finding work for boys or girls when they leave school. I have before me statistics of the class of employment to which these children go, and they bear comparison with any work which is undertaken by children of the same class who leave in the fourth or fifth standard. Certainly they do not become electrical engineers or solicitors' clerks; but the boys have the mental capacity to become van-guards or to sell fish in the street, and the girls do rag-sorting or act as shopgirls as well as many normal

children of that station in life. Further, to keep the child at school is really an imposition of a tax upon the household of the amount he might be expected to earn. All these reasons settle the child's future in the little world in which he lives. He must go to work.

The industrial career of the unskilled workman has never been elucidated. The life of those who are at the same time mentally deficient is wrapped in a still more profound obscurity. Only this we know, that the boy who starts as a van-boy or in some trade which employs a superfluity of adolescents, will find himself out of work at the age of eighteen; that the struggle to gain an honest livelihood will then be upon him as intense and sharp as the keenest competition can make it; and if the normal boy can only, with the greatest difficulty, find regular employment, what must be the lot of the mentally deficient? It is more easy to find work for the girl; but the tragedy of her life may be deeper still; it may be read in the statistics of infirmaries and the reports of vigilance societies and rescue work.

And, further, want of inhibition is not an advantage in the lower ranks of industry; the work is competed for to an extent which makes the employer or foreman careless of his acts and words. Resentment—and the mentally defective are quick to resent an insult—may mean instant dismissal, and thus it may be possible that the boy or girl who cannot keep his situation is deficient in this way. It is the complaint of the large societies which befriend young servants that the mentally defective girl cannot be got to stay, and that they present a problem of their own in their relation to their employers; and the boy too often will break into an unreasonable passion which will secure his dismissal; and this will mean a space of weeks' or months' unemployment, perhaps a permanent drop into the ranks of the loafer or the thief.

One advantage I can record for the mentally defective to counterbalance these disabilities. Highly organised unskilled industry, and every industry with a modicum of skill, is so monotonous that the man who is dull without imagination, and without thought, may be more content to live and work in a routine which might crush the more highly-strung organism. This brutish content can produce an industrial machine which has its value in the labour market; on the other hand, the employer will be loath to engage a man whose slowness of apprehension may be a cause of an accident to himself, and therefore a liability of compensation which, under the new Act, may reach some very large dimensions.

In the face of this lurid picture of the mental failure in human society, I propound the question, What is the duty of the Legislature and the social worker? I imagine we can get little from Acts of Parliament. The Act which compels these children to remain at school till they are sixteen is so far in advance of the public opinion of the slum that for the next decade at least the responsibility of the parent in this direction cannot be pressed. Children will continue to leave at the earliest opportunity, and it will take long before parents can be induced to see that further schooling may be an advantage. Still the boy will slip down some blind alley of industrial life, and the girl will mind babies or do low class factory work until she assumes other responsibilities.

Here the after-care committee may have some slight influence, and the power of the granting of exemption may be a lever towards raising a structure of real ambition in the child's and parents' mind. Too often

it is but a baseless fabric; for it is discouraging to grant exemption to a boy on condition of his becoming a french-polisher and to find him a few days afterwards selling papers in the streets; and it seems wasted effort to fit a girl out for service if, within a fortnight, she has taken refuge in a rag-sorter's shop. The only permanent influence on the backward child is to be found in the home. When he goes out to make his living he finds that the great world of business is without pity and without remorse. If he does not suit, either in capacity, in temper, or in strength, he must go. Only in the atmosphere of his family is he understood; only there are allowances made for his shyness, his nerves and his stupidity. Therefore I am always glad if a boy can work with his father, or a girl can find useful employment at home. To the boy this is of the utmost value, and to the girl it is almost a necessity. It is family influence, and family influence alone, which will effectually save the boy from becoming a vagrant and the girl from deeper degradation; and the solution of the mentally defective's future must be sought primarily in the uplifting of that environment which he calls his home.

Dr. Stanley B. Atkinson, J.P. (4, Ewing Street, Bow, E.), canvassed the statements that the children felt their position acutely, and that it was not difficult to find work for the boys on leaving school. Senior scholars and junior teachers, however, must be prohibited from nicknaming either these scholars or the schools to which they are sent. It is difficult to trace what economic history these children experience, as they are soon lost sight of owing to their frequent changes of situations. He regretted that two metropolitan institutions, whose deeds were so wholly beneficent, should work in silence and in comparative darkness; seldom was the work either of the London special schools or of the Metropolitan Asylums Board spoken of or written about; their operations were unknown and hence unacknowledged by the general public, to their mutual disadvantage. The parents of such scholars must be interested in the schools, and to educe this they must have some knowledge of the actual and comparative mental condition of their children. In that way would entrance to and continuance in special schools be welcomed, rather than, as often is now the case, dreaded and combated. He had known cases where, in order to avoid compulsory admission, the children have been declared as Roman Catholic, notoriously *ad hoc*. In order to extract the child great ingenuity was displayed by the parents as soon as the ordinary school age of fourteen was passed; notably, in the case of girls, it was alleged that "She has become a woman! 'Twould be indecent to let her stop." Elder Girls' Domestic Centres might be inaugurated for these senior scholars. The prospect of a sojourn in a boarding-school was less often resented, though the voluntary nature of this residence was not always put clearly before the parents by the educational officials. He would suggest that the parents of defective children should be taken more into the confidence of those who knew "the secrets" of the case, for surely the father and mother were parties to that secret. He would have parents circularised in plain but emphatic diction as to the hope and scope of such schools and of such scholars; he would also encourage conferences between the parents and the teachers or the visiting medical staff. From what he could learn, however, the parents do not often attend at the present initial medical examination, although always summoned for that occasion; possibly if evening sittings were held the father might be induced to attend.

Dr. F. M. Dickinson Berry (21, Wimpole Street, W.) wished to correct a small misapprehension that might arise from the remarks made by Dr. Atkinson. She had examined children for admission to the special schools for many years in all parts of London. She found that the child was brought by the parent in, roughly speaking, quite two-thirds of the cases. It was a strict rule of the L.C.C. that no teacher should bring a child to be examined without first communicating with the parents and requesting father or mother

to attend. If the parent refused repeatedly to allow the child to be examined the law was put in motion; but the knowledge that there was liability to a fine of £5 generally had the desired effect.

Miss TOWNSEND (National Association for the Feeble-minded) said that she cordially agreed with Mr. Iselin that feeble-minded boys succeeded best in monotonous occupations. They were more content than normal boys to go on at the same thing day after day, since they had no ambition and found change of any kind too great an effort of mind. This being the case, why not train them for work on the land, which was best for them from every point of view? The experience of the National Association for the Feeble-minded favoured this suggestion, and a considerable number of the youths who had passed through their Boys' Farm Home in Essex were doing well as agricultural labourers in the neighbourhood of the Home, where they could still be kept under the supervision that would always be necessary. It would be well to establish more such Homes, or to found colonies which would employ the inmates within their own borders. Supervision both in the Homes and out of them could not be dispensed with. There was hardly any work in large towns in which feeble-minded boys would not fail after a short time

Mr. T. W. BERRY (Director of Education, Rhondda, Glam.) advocated the extension of the school life of the mentally defective children, such school life to be spent in residential schools or homes where the practice of agriculture could be pursued. The present system turns such children on the world at an early age, when they are not capable of self-support or of participating in the usual interests of life; they are, however, capable of marriage. Money now spent is mainly wasted; but it is followed by expenses incurred under the poor law; whereas if the colony system were adopted the workhouse would rarely be the goal, and useful members of society might be produced.

Councillor P. WRIGHT (Newport, Mon.): I fully endorse the suggestions, and can prove by actual observations that the backward and mentally deficient child becomes the criminal of the future. We as a nation deal with effects and not with causes; and unless the State provides for their safe-keeping and guidance, we can adopt no alternative but sterilisation as the most humane system for the individual and the State.

THE CRIPPLE COLONY AT CHAILEY IN CONNECTION WITH THE GUILD OF THE BRAVE POOR THINGS.

By Mrs. C. W. KIMMINS.

"Arise and walk," the One Voice said;
And lo! the sinews shrunk and dry
Loosed, and the cripple leaped on high,
Wondering, and bare aloft his bed.

The Age of Miracle is fled:
Who to the halt to-day shall cry—
"Arise and Walk"?

Yet though the power to raise the dead
Treads earth no more, we still may try
To smooth the couch where sick men lie,
Whispering—to hopeless heart and head—
"Arise and walk"!

AUSTIN DOBSON.

ON St. Martin's Day, 1894, the Guild of the Brave Poor Things was founded, taking its often misunderstood title, its motto, *Lætus sorte mea*

(Happy in my lot), and largely its general inspiration from Mrs. Ewing's book, "The Story of a Short Life." Irrespective of age, creed, or any other limit, the Guild gathers together all maimed people, whether men, women, or children. It is a charity in the real and true sense of the word, and was founded to supplement already existing charities for afflicted people.

In addition, however, to the social work of the Guild at headquarters or its various branches, very sound educational work is done at the Heritage Craft Schools for Crippled Boys and Girls at Newick and Chailey, Sussex. The aim of these craft schools is to enable specially afflicted and disabled members of the Guild who show special talent to be thoroughly trained, and to become in time partially, if not wholly, self-supporting. What this means to those who have given up all hope in the future, and belief in themselves, is quite indescribable. Old English toy-making and quaint nursery furniture forms for the present the chief industry for the boys; for the girls, accessories to nursery furniture, cot and mail-cart covers, curtains, screens, blotters, children's clothing, etc. Exhibitions are held annually in London during May and December, when orders for work are gladly taken.

The Girls' Craft School has received a great impetus this year by the munificent generosity of Lord Llangattock, who, fully recognising the educational value of the work done in these pioneer craft schools, which combine all the benefits to be derived from a convalescent home side by side with the teaching of a craft, has presented the Guild with a magnificent site of five acres at Chailey, standing high, surrounded by pine-woods and facing south, upon which he is at this moment erecting a model craft school for thirty crippled girls, where they will be taught their trade under the best possible conditions. The Guild has set itself, in gratitude for this most unexpected and welcome encouragement, to collect £1000 for the adequate equipment and furnishing of such a model building.

At these Heritage Schools fully-trained nurses have charge of the health of the children, who are regularly examined by the Guild medical officer and dental surgeon.

In addition to the colony at Chailey, the Guild has its own holiday scheme, by means of which every member certified by the doctor is provided with an annual holiday to the sea or country, to whatever extent the holidays funds allow each year.

It is necessary that discretion, much forethought, a vast amount of tact, great earnestness, and unimpeachable honesty in administration on the part of all taking office in such schools should exist, or the experiment will be a bitter failure. The wisest and most implicit co-operation must exist between those who plan and those who carry out the system, for there are risks enough to run in these pioneer schools, and one cannot allow these children to become victims of machine teaching or any form of "rings." Such schools as these will always be more liable to abuse than any others; but the adoption of the Heritage methods into other schools, and the starting of many more on similar lines, will be their justification.

The simultaneous training of head, heart and hand is one very striking characteristic of the Guild's methods, and is systematically exercised. The boy, by means of his bench work, the girl, by her art work, is given an impulse towards moral self-direction, and the discovery of the power

to work out original ideas makes new children of them. If caught in time the wheels of the child's mind are set in motion, and all the best, finest and highest instincts, as well as cultivating the noblest and most vivifying forces of which he is possessed.

But to hear of a scheme and to see it with one's own eyes in actual working are very different things, and so we say to some of you most gladly, "Come and see for yourselves, and then judge." You will find no brain-cramming methods, which would seem out of keeping with the peaceful countryside, but you will find a very real welcome. The whole of the instruction is given in well-equipped and spacious rooms, which are at once schools and workshops.

But the care of the cripple at Chailey does not stop at the end of the boy's training. There is a "trade workshop," into which the lads are drafted when they have reached the satisfactory stage in their school course. Once in this workshop they become real craftsmen. They lodge in the village, come to work at half-past eight, and leave at half-past five, with an interval of an hour and a half for dinner and rest. There are also "resting times" at a quarter-past ten and four o'clock.

The average weekly earnings of six of these boys for three months were 11*s.* 6½*d.* Time-sheets are kept, and the workshop, which is run on business lines, shows a small profit over all expenses. Wooden toys, nursery and garden furniture, carpentry and cabinet work are the principal products of this little, but remarkable factory. Here is a boy with only one arm, who can make a toy or a cupboard and earn an average of 10*s.* 8*d.* a week, another who has lost the use of his legs but earns 10*s.* 4*d.*, one more with a wooden leg and one eye, taking an average of 11*s.* 3½*d.*, while a very intelligent lad with spinal deformity earns over 14*s.* This is no amateur workshop. Both the headmaster and his assistant are practical men.

Other boys have gone out into ordinary workshops. Two are at a local builder's, earning good wages and supporting themselves entirely. Two are well placed out in good firms in the North of England. Another is in London at a West-end workshop. His employer tells me that at some kind of work he can easily earn 4*d.* an hour, and on an average 3*d.*, with the opportunity of going to 7*d.* an hour. This boy is paralysed in his right leg.

Both schools are registered by the Board of Education, and the London County Council send some of their cripples to Chailey to benefit by the fine training as well as the healthy, open, country life.

Each boy and girl has to do his very best, irrespective of all the rest of the school.

The Heritage boys and girls have their games, country rambles, field sports, cricket, football, croquet, etc.; the girls make Nature calendars each month, where the quaintest entries find a place about their walks and whatever they have seen in the way of new flowers, etc. What an immense value to these town-bred children is this training in habits of observation.

A great deal of time is spent on the cultivation of politeness and courtesy; indeed the social atmosphere of these homes is one of their strongest points.

The scheme is not yet complete, it needs two things; and we look forward hopefully to the completion of the scheme by an early date.

The Guild needs its own convalescent home by the seaside, within driving distance of the craft schools, to serve a double purpose. It needs this home, to which the scholars from the schools may be sent as occasion requires, which is more often than one would at first suppose, for the suffering of these children is so mercifully hidden by the care of the matron that a visitor is prompted to ask, "What is the matter with these children? They look to me so well." But they should visit the dispensary between eight and nine in the morning, when wounds are swiftly and tenderly dressed, instruments readjusted, and many painful moments spent by the majority of the children. They would then realise what this hospital side of the school really means, and what effect it has had upon the results already attained. This is really the starting-point for the pioneer work, this linking together the convalescent home treatment with the benefits of the craft school. Many are the magnificent convalescent homes scattered about the country, and many are the craft schools where cripples may be taught, but to blend the two in one and the same institution is the piece of pioneer work which the Guild claims the honour to have done.

The other thing necessary to the completion of this colony is a small hospital school of recovery, a little place devoted to research work of the most interesting kind where children will be received. It is well known that those who are crippled have often gone through months and sometimes years of debilitated health before the disease quiets down, leaving them more or less crippled. No less an expert than Dr. Kerr, the medical officer to the London County Council, has expressed his opinion that in the earlier stages, instead of a few weeks in a large city hospital and then a long attendance as an out-patient, remaining, in spite of treatment, debilitated, unfit to learn, and often ill, for the greater part of their youth, that these children should be transferred at such a stage to clean country life and the routine of a well ordered life, and that by such means the illness would be greatly shortened and the permanent damage much mitigated. We would suggest that this school of recovery should be planned to take such children and keep them six, twelve, eighteen months or more as may be necessary, especially in the case of children whom it may be useful to ultimately pass on for technical training in the invalid craft schools. This would do an enormous amount of good by *prevention*, and at the same time those who are transferred to the craft schools would come there prepared for their work after having had a certain amount of discipline and training, and be all the more able to profit by further instruction. There are hundreds of children in London and in the Guild alone who will be more or less invalids for years, to whom six or eight months in such a school of recovery would mean health, and perhaps the prevention of much permanent damage.

The relation of these pioneer schools at Chailey to social reform is simply that, as a plan of education, they offer most valuable suggestions in regard to the mental, moral and physical culture of afflicted children. They beg for the rational training of these boys and girls and the development of economy, thrift, self-reliance, courtesy, industry, and a host of other virtues, but too little in demand at present. That emphasis be placed upon manual work for cripples and its development of beauty, harmony and order. The insistence upon the moral effect of such a training as is possible in schools of this kind, where environment helps

to as much health as is possible, where the children are allowed the care of gardens, pet animals, etc., and where they have an all-round social training side by side with the learning of a craft. This is but a tithe of the whole argument. If further interest is taken in the apprenticeship of crippled boys and girls by means of these "Heritage" object-lessons in connection with the Guild of the Brave Poor Things we shall be well content to have founded the schools, for we would that all maimed people everywhere might be really and truly "happy in their lot," and to all we would give, in Mr. Henley's clear, ringing tones, the universal message—

> Master of masters! O maker of heroes,
> Thunder the brave irresistible message:
> Life is worth living, through every grain of it,
> From the foundations to the last edge
> Of the cornerstone—death.

A HOSPITAL SCHOOL FOR CRIPPLES.

By E. MUIRHEAD LITTLE, F.R.C.S., *Surgeon to the Royal National Orthopædic Hospital, London,* and MARY LITTLE, *a Manager of Special School No. 77 (P.D.) under the London County Council.*

THERE have been schools in orthopædic and other hospitals in the United States for a good many years. As far as our information goes these have all been for those patients who are able to leave their beds, and they have been held in separate class-rooms. The same remark applies to the first school of the kind in Great Britain, that established in a convalescent children's hospital at West Kirby, near Liverpool. At the National Orthopædic Hospital in London attempts had been made to give some instruction to the younger inmates, but these were casual and intermittent, because no regular teacher was available. Stimulated by what we knew of the work in the New York Hospitals, with the consent of the committee of management we provided a teacher for the children in the year 1903. Subsequently the ladies' committee undertook the payment of a teacher until, in May, 1904, the School Board for London took over the school and provided a trained teacher, whose services are still devoted to the work. On the abolition of the School Board, the London County Council took its place, and has since increased the teaching staff to three. In 1905 a hospital school was started on the suggestion of the Rev. Edwin C. Bedford at the Alexandra Hospital for Hip Disease in Queen Square, Bloomsbury, under the Education Committee of the London County Council. This school is now grouped with the Orthopædic and the Tavistock Place Cripple Schools. All three are known as "P.D." (physically defective) schools. At the Royal National Orthopædic and at the Alexandra Hospital the teaching is done in the wards, and the children are in bed. In the former school this is unavoidable because of the nature of their malady, which necessitates recumbency; at the latter,

no doubt, a certain number of the patients might sit up, but the want of any place where they could be taught other than the ward has made it useless even to consider the question.

There were twenty-six children on the roll when the school at the Orthopædic Hospital was first opened by the School Board in 1904. Since that date 300 have been admitted. To many of these the words of Dryden might be applied: "I am a cripple in my limbs, but what decays are in my mind the reader must determine." A certain number of cases are afflicted with mental as well as physical defects. Of the 300 children mentioned above, seventy-five were classed as mentally defective (M.D.). Even to these, however, excepting a very few extreme cases, the school means relief from much tedium and produces a marked improvement in temper and intelligence. In the teacher's report for the whole period only two cases are said to have made *no* progress. The average age of the pupils is between nine and ten years; the average stay in the Orthopædic Hospital three months. Only four children remained in the wards as long as a year.

As to the cases: thirty-four were under seven years of age, five over fourteen years on admission. Of the children under seven about 50 per cent. have known nothing, having had no previous teaching; four children over fourteen years have not known their letters or been able to write or count. One child of fourteen could not count beyond five. In children under seven the average progress made has been about equal to the promotion from one class to the next higher in an infant school. In older children the progress has averaged one standard, which, when the average stay in hospital is considered, is a very good rate. In several cases of very bright children the teacher has heard, after they have left, that they have been raised two standards on their return to an outside school.

The shortness of the stay in the school and other difficulties and unavoidable interruptions cause the subjects taught to vary in degree of difficulty and in kind, with the exception of the three R's, which are invariably taught. The choice of other subjects is left entirely to the discretion of the head teacher, who is given a free hand. The following is the time-table at present:—

Morning: reading, writing, arithmetic, English history, nature lesson, Scripture, singing, geography. Afternoon: handwork, consisting of drawing, rug-making, macramé knotting, raffia hat-making, cross-stitch and marking, plain sewing, knitting, fancy work and embroidery stitches. These are varied to suit the capacity of the children. In a few cases children coming from private or higher-grade schools have continued the subjects that are taught there, such as French, German, etc. On leaving the hospital, children living in London are transferred to physically defective or mentally defective schools, as may be found necessary. It is difficult to follow the careers of those children whose homes are not in London, as, with the exceptions of Leeds, Liverpool and Manchester, no places have organised any schools for mentally or physically defective children. Accordingly, the hospital authorities have had appeals from the parents of discharged children to tell them how they might continue the good work done in the wards.

At the Alexandra Hospital the cases are all of one kind and can therefore be treated with more uniformity. There are few cases of

mental defect, but, on the contrary, these tuberculous children are usually bright, intelligent and good-tempered. The average stay in the Alexandra Hospital is twenty-seven weeks—just over half a year—and the average number of beds occupied in 1906 was ninety-five; but these figures include the convalescent and country branches. The London establishment, with which alone the school is concerned, has sixty-five beds. The absence of a resident medical officer and the chronic nature of the cases, which calls for comparatively few visits, minimise the interruptions to the teaching. The subjects taught are the three R's, singing, history, geography, drawing, composition, etc. A feature here is the physical drill with the arms only, which has not as yet been attempted at the Orthopædic on account of the localisation of the diseases for which the patients are treated there. The average age is the same as in the other hospitals—between nine and ten years—and all are under fourteen. There is one difficulty here, owing to the recumbent position of all the cases, which makes writing very inconvenient. They do a fair amount of writing lying on their backs, but the effort of holding up both arms, one to hold the pen and the other the paper, very much increases the fatigue, and can only be maintained for a short time. It has not so far been found possible to provide the needful but costly appliances.

The first and most difficult thing in the organisation of a hospital school is to find a teacher who will establish discipline while herself submitting to it, and who combines tactful diplomacy as regards the hospital authorities with great insight into the varied physical peculiarities of her pupils. She must never allow herself to forget that they are patients first and pupils afterwards; that, in short, their mental must, for the time being, be subordinated to their physical development. With regard to discipline. The children in the two hospitals now under consideration are all in bed, and all wear instruments, splints or some such mechanical appliance. They have also been subjected to the discipline of suffering. On the other hand, however, the teacher has to face the difficulty of teaching pupils mixed up in one class, of ages varying from five to sixteen. The house surgeon has free access to the class-room, which is the ward, and may remove a patient for dressing whenever he thinks necessary, or the surgeons may banish the teacher from the ward during their visits if they see fit. Such interruptions, of course, greatly shorten lesson times, which are already reduced to the Council's minimum. Operation days, moreover, occur several times a week, when certain scholars' lessons are temporarily suspended by their being borne away, to return in a state of at least partial unconsciousness, from which, however, in some cases, they recover soon enough to resume work before the morning lessons are over.

At a recent meeting in aid of the Association for the After-care of Cripples, an experienced speaker divided the children into two classes. One consisting of those who had been neglected, and another of those who had been indulged and spoilt in every possible way. The general progress of pupils in the hospital school depends to a very great extent on their previous history.

We take it that the main object to be kept in view in a hospital school is to fit the pupils for some pursuit in after-life that will in part, if not wholly, provide them with a living. For after all the care and attention bestowed upon them we have to face the fact that cripples are seldom

cured to the extent that they are able to compete on equal terms with healthy people. They are unfitted for the more laborious callings; but many of them are exceptionally clever with their hands, and even the slightly weak-minded are often capable of acquiring considerable skill as handicraftsmen. The cases of Lord Byron and Sir Walter Scott are enough to establish the fact that some at least of the cripples are fitted for intellectual pursuits. The girls appreciate needlework much more than their compeers who can play rough games, and the old way of teaching it by means of samplers is particularly acceptable, as the work is light to hold, small in compass, and not difficult to learn. It opens an excellent field for an industry to be followed in after-life, although it is not enough for a support. Some questions addressed to the surgical instrument makers as to the desirability of teaching the boys surgical bootmaking were responded to very favourably, but it cannot be taught to them while in hospital. It is, however, about to be tried in one or more of the special schools in London.

If a study of the hospital schools suggests Mr. Weller's inquiry, "Vether it is worth while goin' through so much to learn so little, as the charity boy said ven he got to the end of the alphabet," anyone who visits the wards of the Orthopædic Hospital and questions the children will have no difficulty in arriving at their opinion on the matter, which is an almost entirely favourable one. Perhaps an almost better proof is afforded by the eagerness with which a holiday school was welcomed during last summer vacation. Few people, we think, realise what industrious creatures children naturally are, and how much they crave for occupation. Perhaps we are apt to forget how many blank spaces would be left in our own lives if we were to be deprived of the pleasure and profit of reading. Let us add to this deprivation the loss of the power of movement and the impossibility of getting one moment's change of scene to beings who, in a normal state, are seldom willingly still except when they are asleep; and we may form some dim idea of what four hours' occupation daily may mean to those of whom it is said, "For, oh! say the children, we are weary, and we cannot run or leap."

Dr. BOULENGER (Brussels), sur "L'état de la question des enfants estropiés et infirmes en Belgique": Il y a encore peu de choses réalisées en Belgique en faveur des "*physically defective*." Cependant, la loi de 1811, édictée par Napoléon I^er^, disait déjà, très explicitement, que les conseils des hospices chargés d'aider et de soutenir les enfants orphelins estropiés doivent leur donner l'instruction ordinaire, mais en plus leur apprendre un métier adéquat à leur infirmité. Or actuellement, cette loi, à ma connaissance, est encore restée lettre morte.

Toutefois, je dois signaler quelques œuvres, actuellement existantes, bien que très imparfaites, comme répondant en partie à l'éducation des infirmes. Il existe d'abord à Middelkerke la fondation du Comte Roger de Grimberghe, dépendant du Conseil des hospices de Bruxelles, où l'on traite chirurgicalement et médicalement les enfants rachitiques, les enfants estropiés, anémiques profonds, etc. Mais, comme c'est un chirurgien qui souvent est le médecin directeur de l'institut, c'est la partie chirurgicale qui domine. Et on réalise ainsi la première partie de l'œuvre en faveur des infirmes et estropiés—"le traitement médical." Les enfants restent plusieurs mois ou même plusieurs années dans l'institut et y refont leur santé, au bord de la mer. Malheureusement, le Conseil des hospices n'y a mis que deux institutrices primaires, donnant des cours ordinaires. Aucun professeur de métier n'existe dans l'établissement. Cependant ils y seraient très utiles. Il faut encore signaler les consultations et services de la plupart des hôpitaux

belges où l'on fait de la chirurgie infantile ; pour Bruxelles, par exemple, les services du Dr. Lorthioir, à l'hôpital St. Pierre ; du professeur Laurent, aux Enfants Assistés ; du Dr. Hendrickx, à la Policlinique, etc. Mais on ne fait dans ces services que de la chirurgie infantile, et de l'orthopédie. Il existe encore quelques institutions pour vieillards infirmes et estropiés à Malines (payants), à Grammont, mais ce sont de simples garderies de vieux infirmes. Lorsque ces malheureux deviennent gâteux ou déments on les envoie dans les asiles d'aliénés. Le Dr. Vervaek, dans un travail récent, présenté à la Société d'Anthropologie de Bruxelles, signale cependant le nombre considérable de malheureux infirmes ou estropiés devenant des mendiants et des vagabonds. Il signale que sur cent vagabonds ou mendiants condamnés en Belgique, il y a environ 60 % d'estropiés ou d'infirmes, vieux ou jeunes. En Belgique donc, le gouvernement et la loi ne trouvent qu'un moyen de protéger les estropiés, c'est en les condamnant, en les marquant du sceau de l'infamie. C'est déplorable et profondément triste.

Cependant, à la quatrième conférence de la "Société protectrice de l'Enfance Anormale," le Dr. Decroly et moi, nous basant sur l'excellent travail du Dr. M. Rosenfeld, présenté au premier Congrès d'Hygiène Scolaire à Nuremberg en 1904, avons présenté un rapport demandant qu'en Belgique au moins on daigne s'occuper des estropiés. Nous signalions que les pays latins, dont fait partie la Belgique, semblent ne pas se préoccuper du tout de cette question, et nous terminions en émettant le vœu que les provinces auraient dû s'en occuper, suivant le désir exprimé par le Dr. Rosenfeld. La conférence adopta ce vœu, le signala au gouvernement, qui ne fit rien depuis octobre 1905.

Cependant, la loi sur les accidents de travail, adoptée par les Chambres belges, semblait devoir éveiller l'attention des gouvernements sur les écoles pour estropiés. On sait que le travail dans la grande industrie, si meurtrier, est permis chez nous à partir de l'âge de douze ans. C'est vous dire que parmi les estropiés de l'industrie, nous avons beaucoup d'enfants chez nous. Et alors s'explique la belle intervention des députés permanents du Hainaut. Messieurs l'Avocat Pastur et le Dr. Caty, qui publièrent un très remarquable rapport sur la question, réussirent à faire adopter leurs conclusions par le Conseil provincial ; c'est-à-dire, qu'au budget de 1908, un crédit de 80,000 francs pour la création d'une école industrielle pour estropiés a été inscrit. Le but sera de rendre les malheureux infirmes le plus apte possible à gagner leur vie d'une façon autonome, sans devoir avoir recours à la charité publique ou privée. On divisera l'école en deux sections, une pour les enfants et jeunes gens, l'autre pour les adultes. Enfin l'établissement s'ouvrira en mars 1908. Le gouvernement belge a cru ne pas devoir aider moralement et financièrement le Hainaut dans sa superbe entreprise ; c'est regrettable pour nos hommes d'état. J'espère, cependant, que cela n'empêchera pas les provinces de Liège, du Brabant, etc., de suivre la voie tracée par le Hainaut. Il est heureux enfin que le Hainaut ait précisément suivi les conseils donnés par le Dr. Rosenfeld, au premier Congrès International d'Hygiène Scolaire de Nuremberg. J'espère donc que quoique la Belgique soit immensément en retard dans cette question, comme en quelques autres, vu qu'elle suit le bon chemin pour débuter, qu'elle réalisera en quelques années une œuvre parfaite, si pas complète.

Ellen Stones, M.A. (Sanderstead): After visiting a number of crippled children in their own homes in London, it was found that the parents often do not carry out the instructions given to them at the hospital where they have taken their child.

In a case where a splint with a patten was ordered, the child only to walk with crutches, the boy was allowed to walk without crutches, and another splint without patten was procured. Another child, a girl, suffering from hip disease, discharged from the Hip Hospital as cured, was ordered to come up again in six months. Owing to her mother's indifference she was allowed to go nine years without any surgical advice.

Numbers of other cases show that owing to the ignorance but not want of affection of parents for their crippled children, the treatment ordered at the hospital is not carried out, and that more residential schools or hospitals are to be desired.

THE CLASSES OF PHYSICALLY DEFECTIVE CHILDREN FOR WHOM INSTRUCTION IN SPECIAL SCHOOLS IS NECESSARY.

By Reginald Cheyne Elmslie, M.S., F.R.C.S.,

Local Assistant Medical Officer to the Education Committee of the London County Council; Assistant Surgeon to the Metropolitan Hospital, London.

It is now eight years since the School Board for London opened the first "Invalid Centre" for the instruction of children who, owing to chronic ill-health or to physical defect, were unfit to mix with their fellows in the larger schools. The number of centres has rapidly increased, until at the present time there are twenty-three open, with accommodation for 1428 children, and with 1802 children actually on the roll — a sufficient number to render a survey of these children from the medical standpoint both interesting and instructive.

The schools are dotted about all over London; each accommodates from forty to one hundred children, drawn from a district which may have a radius of one and a half or two miles, ambulances being used to collect the children in the morning and to take them home in the afternoon. A qualified nurse, a cook, and one or more helpers are in attendance at each school; in addition to their other duties they prepare a mid-day meal, for which the children pay. A voluntary association assists in this catering, and also provides food at a reduced rate or free in cases of want.

Children are passed into the school after examination by a medical officer, who also periodically sees all children in attendance. Notes of their histories and of any changes in their condition are kept in a case book. They are required to remain at school until the age of sixteen, unless they are passed to leave or to return to an elementary school at one of the medical officer's visits.

During the past year I have kept careful record of the condition of 1050 children seen and examined by myself in these schools. As far as possible details as to the disease or deformity from which they suffered, the age at which it arose, the treatment which had been carried out, and the result as shown by the present condition of the child, were noted. With the co-operation of the teachers further notes as to the educational backwardness of the child, the amount of schooling lost through illness, and any notable deviations from the average in ability, were taken.

This number (1050) represents only a small proportion of the physically defective children in London; but having been taken without selection,

we may accept these children as a fair sample of the whole. From a consideration of them I propose to show—

1. What classes of children are at present being educated in the London schools for physically defective children;
2. What purpose is being served by educating these children, what results are being obtained, and generally whether the system is a desirable one.

The general classification of these children is set out in the table. The first point calling for attention is the group of seventy-two children who suffer from none of the conditions for which these schools are primarily intended. This group comprises a small number of semi-blind, semi-deaf children, too bad for education in an ordinary school, too good for a special centre for the blind or deaf, and a larger number of children suffering from no definite illness or defect whatever. The latter were found to be even more backward in their school work than were children suffering from such chronic ailments as tuberculous disease of the hip or spine. They are a group of delicate, nervous children, who have missed much schooling owing to illness; they are unfit to mix with healthy children in a large school, and until the London Education Authority sees its way to the provision of special accommodation for them, a certain proportion of them must be found places in the schools for physically defectives.

Turning to the children for whom these schools are more specially intended, it will be seen that just about one half of these are suffering from tuberculous disease of the bones or joints, the hip or spine being the site of the disease in the majority of cases. Indeed, it is for the care and education of those children who suffer from the more severe forms of surgical tuberculosis that these schools may be said to be primarily intended. The age at which these diseases usually arise is of importance. From those cases in which the history had been recorded the following facts were made out:—

In tuberculous disease of the spine the disease arose between the ages of one and five in 72 per cent.

In tuberculous disease of the hip the disease arose between the ages of two and six in 64 per cent.

In tuberculous disease of the knee and of other joints the incidence was spread equally over the first nine years.

These facts agree with such statistics as have been published from the records of hospitals. They indicate one great difficulty which is bound to arise in dealing with these children in schools—viz., that the disease is already well established, and much deformity has often arisen, long before school age is reached. For example, of the children with disease of the spine who were examined, in only about 10–15 per cent. was the disease considered to be active, whilst 58 per cent. had very severe fixed deformity of the spine.

Many of the observations made upon these children are of purely surgical interest; some, however, also bear very directly on education. In the first place, the actual mortality from the disease is not high, but a considerable proportion die from intercurrent affections. We may take it, however, that the majority of the children will live to adult life, will then outgrow the actual disease, but be left with the deformity to

which it has given rise. They will then have to take their place in the world, and to endeavour to earn their livings in competition with others who do not suffer under the disabilities of a fixed deformity, and of educational backwardness, the result of prolonged ill-health. Surely, then, our endeavour should be at one and the same time to prevent or alleviate deformity, and to carry on instruction during the periods of illness.

Now, in examining a series of cases of quiescent tuberculous disease two points stand out at once. The first is the frequency with which disease which was apparently cured reappears. A great physician has said of tubercle in the lungs that it is often arrested, very rarely cured. The same is true of tubercle in the bones and joints; over and over again a child with hip disease remains apparently cured for a year or two, then some slight accident, a little over-exertion, or some affection of the general health lights up the disease afresh, and treatment has to be carried out all over again. For this reason I am convinced that this class of children should be kept out of the large schools, no matter how well they appear to be. To allow them to mix commonly with their healthy fellows, to play rough games without supervision, frequently ends in disaster.

The second noticeable fact is the large proportion of these children who are left, when the disease is arrested or cured, with a severe deformity which seriously affects their prospects in after-life. Now this is not unavoidable; fully half the deformities following on tuberculous disease are due to three causes which may be overcome. The first is the commencement of treatment at too late a stage; this is remediable to a certain extent by increasing medical inspection, and by training those having charge of small children to consider any weakness of the spine or limbs as serious. The second is too short a period of rest in recumbency during the active stage of the disease; and the third, I regret to have to say it, is meddlesome operative surgery. These last two are not by any means altogether the fault of the surgeons. Owing to the absence of special accommodation for these children most of them have to be treated at the large general hospitals. Here there is a constant pressure upon the beds, there are always more patients waiting for admission than it is possible to find room for in a reasonable time. Moreover, some of the central hospital funds base their grants to hospitals upon the average length of stay of the patients; so that the latter have to be discharged at the earliest possible moment. This rule may be considered necessary to prevent abuse, but it certainly is not in the interests of the patients, and it is particularly bad in its effect on the treatment of children with tuberculous bone disease. They are taken in during some acute exacerbation of the disease, or for an operation, are discharged as soon as possible in a walking splint with crutches, and are then seen at intervals as out-patients. It would be almost impossible to conceive a more thoroughly bad method of treating them.

One result of this method is that children are constantly being taken to a fresh hospital, the parents are dissatisfied with the progress, or perhaps, having stayed away from the out-patient department too long, are afraid of receiving a scolding on returning. Meddlesome operation can be traced to the same causes. The operations to which I specially refer are excisions of the hip and knee joints; these have

the advantage that they sometimes cure the actual disease right away by removing all the diseased structures. The surgeon, knowing this, and encouraged by the success of bold operating in other lines, seizes the opportunity of curing the patient after only a brief stay in hospital. The ultimate result several years after is seen probably at another hospital by another surgeon, who ascribes it to a bad operation, and never suspects that many of the excisions that he himself has done have turned out every bit as badly. Among the cases of old hip disease seen by me, twenty-five had been subjected to excision, and in every one of these a weak, flabby joint was left, the functional result being in every case bad. Similarly of thirty-four children on whom excision of the knee had been performed, twenty-nine were left with a severe deformity. I have no wish to condemn these operations entirely; in their proper place they both are of use, but if they are indiscriminately employed in an attempt to arrest the disease rapidly, not only are they often unsuccessful in this object, but also they often lead in the end to a crippled and useless limb.

The second group of cases includes children suffering from various congenital or acquired deformities, the latter chiefly the result of severe rickets, from infantile paralysis, and from spastic paralysis. These have the characteristic in common that the disability is of a fixed nature; it may in some cases be improved by surgical treatment, but it will not become worse as age advances. These conditions also are either present at birth, or arise in the first two or three years of life. Only the more severe cases of such deformities and paralyses require education in special schools; in the slighter cases the children are quite fit to mix with their healthy fellows. The requirements of this class of children are (1) constant medical supervision during the years of growth, to ensure that they are so treated as to leave them under the least possible disadvantage; (2) special education to fit them for the special work which their crippled condition will necessitate.

The third class includes children with heart disease, with progressive forms of paralysis, and with epilepsy, chorea and some other chronic illnesses. These are alike in that many of them will never reach adult life at all, whilst those who do will as a rule not be fit for any form of manual labour. Their requirements are similar to those of the last class.

Having shown what children are being educated in the London schools for physically defective children, let us consider what the present methods of work are accomplishing. These schools may aim at one or other of two objects :—

1. Simply to educate the children as far as possible, then to turn them out into the world ignoring their physical defect.
2. To do the utmost to arrest, alleviate or improve the physical defect, and by improving the child both educationally and physically to place him in such a position that he is able to support himself.

In London at present it is the first of these policies that is adopted, certain additions to it, however, being made. The additions are :—

1. Supervision in school by a nurse and a doctor, and occasional recommendation of treatment.

2. The provision of good food.
3. Voluntary aid by the local charitable societies, which as a rule keep in touch with the children in school through the managers.
4. Assistance in finding suitable work after leaving school through the after-care committees.

These are all very good so far as they go, but those who assist in carrying them out would, I am sure, be the first to admit that the results are most unsatisfactory. In the first place, the work is voluntary, is not always systematic, and is carried out by energetic people, who mean well and work hard, but too often have an insufficient technical knowledge, and have no one upon whom they can fall back for advice and assistance. In the second place, we have no power over the careless, improvident parents, who are too lazy or too neglectful to make an effort on behalf of their own children, and who, perhaps, object to the offer of the after-care committee to get their boy apprenticed, because it means that they will lose the immediate return they might get from his wages as an errand boy, or in some similar occupation.

The problem of finding suitable work is rendered more difficult by the backwardness of the children, nearly all of whom are two standards behind their proper position, and many a great deal more than this. Moreover, the special nature of the work required is a further difficulty; the estimate arrived at upon this point was that only 20 per cent. of these children will be able to earn their living at any ordinary form of occupation, 50 per cent. will be able to work if special skilled work is found for them, the other 30 per cent. will either not live, or will be totally unfit to support themselves in any way whatever.

Practically, then, although much good is done in individual cases, in London at present a large number of these children are turned out into the world at fifteen or sixteen to make their way as best they can, their physical defect being ignored. And although it may be said that the education authority has done its duty in educating them, the community at large must be the poorer by having a number of physically unfit individuals left upon its hands. Without entering into particulars of alternative schemes for dealing with the problem, certain essential points which should be provided for in such schemes may be named.

1. Three classes of children must be provided for:—
   (*a*) Children with tuberculous disease of the bones and joints.
   (*b*) Children with fixed deformities and paralyses.
   (*c*) Children with diseases of the heart, lungs, etc., of a chronic nature.
2. For children of the first class treatment at the earliest possible time after the disease shows itself is essential, and as these conditions arise early in life, provision must be made for quite young children.
3. Whether the institutions provided are called hospitals or schools is immaterial; they must serve both purposes.
4. Technical instruction is essential for the older children.
5. For certain cases the provision of a permanent home is desirable.

EXAMINATION OF 1,050 CHILDREN IN LONDON SCHOOLS FOR PHYSICALLY DEFECTIVES.

I.—CHILDREN FOR WHOM INSTRUCTION IN SPECIAL SCHOOLS IS NECESSARY ON ACCOUNT OF THE PHYSICAL DEFECT.

	Boys.	Girls.	Total.		
A.—Tuberculous Disease of					
1. Spine	106	80	186	480 (about 50%)	978
2. Hip	100	95	195		
3. Knee	46	34	80		
4. Other Bones or Joints	8	11	19		
B.—Fixed Deformities or Paralyses.					
5. Various Deformities	66	71	137	315 (about 30%)	
6. Infantile Paralysis	57	57	114		
7. Spastic Paralyses	27	37	64		
C.—Various Diseases.					
8. Heart Disease	61	59	120	183 (about 20%)	
9. Progressive Paralyses	8	1	9		
10. Various	22	32	54		

II.—CHILDREN FOR WHOM INSTRUCTION IN SPECIAL SCHOOLS IS NOT NECESSARY ON ACCOUNT OF THE PHYSICAL DEFECT.

D.—Defects of Eye or Ear only	9	8	17	72
E.—Without Special Defect	26	29	55	
Totals	536	514	1,050	

Children with more than one physical defect were included under that defect which was onsidered to be the most serious.

SCHOOLS FOR CRIPPLED CHILDREN IN NEW YORK CITY.

By EVELYN M. GOLDSMITH,

In charge of Montgomery Street School for Crippled Children; appointed by the Board of Education, New York City.

(Paper sent through invitation of Professor WOOD, Director of Physical Education, Columbia University.)

As a preface to the few points I wish to bring to your attention, in a consideration of our schools for crippled children in New York City, it seems well to remind you first in a word or two what education means to the American people, what is its place as an element in our democratic idea of life.

Education, we believe, aims to lead the individual to an actualisation of himself through his own efforts, it stands for the influencing of man by man, and its function is to assist in producing that which the subject would strive most earnestly to develop for himself, had he a clear idea of himself—his worth and duties as an individual, as a self-dependent being, and as a unit in a large whole.

Thus a philosophy of education points out first, that each individual

should be given a chance towards the development of what may be innate ; secondly, it realises that social advancement is dependent on the individual as an active dynamic force ; and as a result of our social theory and the correlated educational theories, we find ourselves to-day with a school system which, though presenting its problems, meets in a fairly adequate way our needs as a nation.

The place of the crippled child in the public school system is one of the problems which has lately become prominent, one to which we address our attention in the following discussion.

The problem has presented itself forcibly in New York City because of the large percentage of crippled children whom we find in our lower east side district, where the population is so congested, and practically made up of poor uneducated foreigners with few ideals and little foresight. But not only here, but in other cities through the State are found numbers of these children, who, though mentally normal, are physically wanting ; and though special classes have been organised for deficient children, and though efficient State schools have been established for the blind, the deaf and dumb, yet the crippled or deformed child has been entirely neglected in a purely public way.

We pride ourselves on the ever-growing recognition we give to the physical demands of the child as well as the mental. I mean this in so far as all children are concerned, except those in question, who, on account of their crippled bodies cannot cope with their mates in the strenuous phases of normal school life. Resulting from this condition of affairs—so far as the public-school system went—the crippled child was left home to become a burden to the family as well as himself.

Private charities and guilds, becoming somewhat aware of the need some five years ago, attempted organised relief in this line, but philanthropies only recognised the physical needs and established hospitals with munificent provision. The organised guilds planned systematically to provide for outings and festivities of these needy ones—those who possessed the power to enjoy, but to whom the opportunity had not presented itself. Soon, however, came the further realisation that such pleasures were only transitory, that physical well-being was not the only important factor. The notion that man's happiness depends on the mental—the spiritual element as well as the physical—became trenchant. In short, the demand for satisfactory educational training became dominant ; and so in our city different philanthropies established systems of transportation by which the child was carried to and from school, not to schools under the public-school system, but to privately supported schools, those in a class by themselves.

The Children's Aid Society was among the first to open schools. Special committees were formed to look after, to provide extra nourishment and special orthopædic apparatus, as well as those to have professional oversight, and attendants to carry children up and down stairs. The workers realised that living in crowded tenements with very little nourishment should be supplanted by a cheery, wholesome, school atmosphere. This Aid Society has this year cared for over four hundred disabled children in some four of their schools, and they report much progress and encouraging results, but add, " our requirements exceed our income." Many are developed along industrial lines, and many fitted for livelihood.

Hospitals, realising the fact that the detention of the crippled children while under treatment was of long duration, opened schools in connection with the hospital. Those interested in the work, knowing than an educational effort of the kind must not only provide for the instructional side, but must also try to provide for that which the home environment is supposed to offer the more fortunately born child, have endeavoured to make the child as happy as possible.

The managers, looking to the future, say in their reports: "We believe the school work is absolutely essential and should be largely developed along industrial lines. Our income is less than our expenses, yet the school is so essential that this expense is important."

And another report says: "The school is of great importance in not allowing time spent with us to be wasted. Out efforts in the past must be as nothing to what we will do in the future. What right have we to allow a child to be incapacitated or hampered in bearing its burdens if by any effort, any sacrifice, on our part, we can prevent it. It is an expense which we feel absolutely justified in incurring, but that is at times very difficult to meet."

Note the encouraging results, the eagerness and necessity for schools, even though it is difficult to meet expenses.

The visiting Guild for Crippled Children of the Ethical Culture Society was started almost fourteen years ago, and it is through their efforts many children returned from hospitals were sought out and education brought to them.

The Darrach Home provides care and educates the children by means of special teachers, or sends them to near-by public schools.

The Home for Destitute Cripples also provides education in the same way.

There are many private endeavours to care for disabled children, but the point in mentioning them is to show you that we have gradually come to recognise the need of attention, and the way the needs have been met up to the last year.

The beginning of the school year of 1906 shows a marked step in the solution of the problem, for at last the Board of Education, believing crippled children are not necessarily sickly but disabled, conceived the plan of establishing special schools which should be centres with those for whom they are intended.

An attempt was made, found successful, and another school has been added. Therefore, at present, we have but two public schools for crippled children, for the questions involved were too many to justify the Board in promoting the movement too extensively and too quickly.

The progress made in these schools and the high percentage of attendance seems to answer the points as to the legal aspect and as to the proper method in locating the schools, and seems to justify the work. The pressing question—still to be fully worked out—concerns itself with methods and their connection with the successful training of the children.

The school in which I am especially interested, and in which I have been working the past year, is one which had already been organised by a guild some five years ago, which recognised the need of ameliorating conditions among the cripples of the New York East Side. So they placed the school in the heart of this district. They had paved the way, so to speak, and it was for the Board of Education, with their co-operation

to reorganise the system and attempt some advance. Thus the Board of Education felt justified in joining forces, for the time being at least, with philanthropy proper to support two schools. The school equipment and teachers are supplied by the Board of Education; the transportation, nourishment, and general physical care is looked after by the Guild. A physician examines the children weekly, and two nurses carry out all directions and suggestions he offers concerning the special treatments. The mental and physical care go hand in hand. Three essentials for the general physical care are necessary:—

1. Baths (every child is bathed twice a week).

2. Nourishment (a hot dinner is served at noon; milk is given twice daily).

3. Fresh air (windows are kept open the year around; 55° Fahr. considered healthful and according to physician's orders).

We have at present 111 enrolled—sixty-six boys and forty-five girls—who are brought to and from school in three stage loads. The school is divided into grades and two kindergartens with six teachers. School officially opens at 9.30, when the last stage arrives, the first stage-load arriving at 8.30. This early hour before school is utilised in bathing children. In the middle of the morning every class at stated periods has recess in the fresh air; milk is provided and baths given to those not already attended to. Thus schedules are arranged so that children are not absent from regular class-work. The seating is individual; every seat, desk and stool being adjusted to the need of the particular child. Classes average about eighteen, for small numbers are essential for individual attention, and much special coaching is necessary for many of these children.

The curriculum is modelled after the regular public school curriculum in most respects. System and discipline are very essential in these special schools, but exceptions can always be made when necessary. At twelve o'clock the morning session stops, and a hot nourishing dinner is provided; then after a half-hour out-of-doors, school-work is resumed at one and lasts until 2.45, when the first load of children leaves to get the second glass of milk and start for home, as the rest of the pupils are dismissed at three. After milk is served they remain in the yard until late in the afternoon, some going into the work-room provided by the Society, where girls are taught embroidery and boys basketry.

In comparing the progress in this special school with the regular public-school work, we find our children have not only covered the outlines planned for the different grades, but they have been able to carry on advanced work. In the manual training three of the usual lessons are grasped in one, showing eagerness and ability for work.

It will be apparent from what I have said that the present plan of work has developed in a somewhat experimental way. The work of the future school must be planned carefully to meet the special needs of this class of children. The building must be arranged conveniently, be provided with necessary equipment, and be so located that it will be reasonably convenient to the homes of the pupils. The course of study must be one which will arouse their ambition and quicken their energy. It must appeal to their minds, and yet afford their hands and bodies rational exercise, and develop skill in the use of tools, giving special trade instruction for those capable of trades, art, music, and, in short,

whatever goes to make most of the crippled child to whom Nature has been unkind. Such must be the school of the years to come, when the public makes full provision for its needs.

The future of this work must depend upon a definite realisation of its importance. The cost must be compensated by a satisfactory result. We may be dreamers, quick to respond to an emotional appeal, but the world is utilitarian. The philanthropist, as well as the taxpayer, seeks justification for his interest, and in the end will ask for a balance-sheet.

It is therefore of prime importance that the case of the crippled child be clearly realised. The responsibility of the State cannot be evaded. The crippled child has equal claim with his more fortunate brothers and sisters to an opportunity for training and education. He should not be thrust aside when the general educational scheme is made up. He must have a place in it and a generous provision for his special needs. To deny him this is unjust and fundamentally illegal. He must not be left to the exclusive care of philanthropy, tender though that be, for he is a future citizen with all the right which inheres to that relation. The State must do its part first, and then the special province of philanthropy will open wide the doors to special service, which can be welcomed but not demanded.

And what an opportunity this work presents. The crippled bodies associated with normal mental powers await full development. If the weak body cannot take part in the romps and plays of childhood the mind can be trained to explore all mysteries. The chair of the cripple may become the throne of a king, for the triumphs of modern days are those of the mind. The future genius who shall point the way by which humanity may attain its grandest victories may be crippled, deformed, and suffering in body, but transcendent in mind. Let us hope that we may assure the cripple children of the world that they shall have an opportunity to win some of the crowns of life.

REFORMATORY AND INDUSTRIAL SCHOOLS.

J. G. LEGGE, Liverpool.

I WELCOME the opportunity kindly afforded me of putting on paper a few reflections on the work of the reformatory and industrial schools, for the inspection of which, on behalf of the Home Office, I was responsible for eleven years—between 1895 and 1906.

There is some confusion in the public mind between the two classes of schools. There is little difference between them in outward characteristics, and the system of management is very similiar. There is, however, a clear technical distinction to be drawn.

The senior schools or reformatories are schools to which are sent juveniles up to the age of sixteen, who have been convicted of an offence punishable with penal servitude or imprisonment. The junior or industrial schools are designed for children up to the age

of fourteen who may not actually have committed an offence, but whose circumstances are such that, if left in their surroundings, they are likely to join the delinquent population.

Thus the senior schools are for actual, the junior schools for potential, delinquents, and the former contain children some three years older, on an average, than the latter. The two overlap to some extent in that actual delinquents, if under twelve and not previously convicted, may be sent to an industrial school.

The majority of actual delinquents committed to the reformatory school, or, if of tender years, to the industrial school, are committed for larceny. In the case of nearly all of them, however, it is not a single act of petty theft which determines the Court to commit them to one of these schools. The particular offence on which action is taken may be slight, but almost always it is the culminating offence of a series of the same kind. The police or the education authorities have had their eye on the child for some time, and only take action when it is clear that the child is in danger of becoming an habitual delinquent. The tendency indeed is not to take action too early, but too late. It is not only on the child itself that the police or education authorities have had their eye—they have been watching the child's home surroundings. There is therefore, besides the child's own delinquency, the character of its home and environment brought to the notice of the Court.

Of those who are sent away to the industrial school the majority are children found wandering and without proper guardianship, or found residing in disorderly houses. In the words of an old Home Office circular, dated 1869, "The point left to the judgment of the magistrates . . . is not whether the child is or is not under any guardianship, but whether it is under proper guardianship. If the child's parents are habitual drunkards, of known vicious or criminal character or temperament, or if they generally ill-use or neglect the child, and are thus the cause of the child's destitution, or leave it to grow up in vice and beggary, they cannot be said to be proper guardians to it, and it will be in full accordance with the intention and object of the Act, and to the advantage of the public, that the child should be withdrawn from their control and placed under the corrective training of an industrial school."

Thus the material that the reformatory and industrial schools have to work upon is of a special kind. Stunted in body the children are, but not stunted, though perhaps twisted, in mental and moral qualities. The children entering these schools are physically as ill-developed as any in the country. The fact was first brought to light by the Anthropometrical Committee of the British Association in 1883, and subsequent researches have fully confirmed the conclusion of that committee. In a paper written for the Royal Commission of 1895 on secondary education, Mr. Roberts, working on the figures of 1883, gave the height and weight of industrial school boys of eleven as 49·6 in. and 63·2 lbs., as against 55 in. and 78·7 lbs. in the case of public-school boys. He went on to say: "As age advances the difference widens, and at fourteen years of age industrial school boys are nearly 7 in. (6·85) shorter of stature, and 24¾ lbs. lighter in weight than those in the upper classes at the same age." Physical censuses carried out by myself in 1901 and in 1903, while supporting the view that the physique of children entering industrial schools was lower than that of other classes of the population,

afforded more favourable results than the inquiry of 1883. Height came out nearly 51 in. (50·8) and weight at 65 lbs. The physical censuses of 1901 and 1903 also made it clear that, with proper attention to food and physical training, much leeway may be made up. As regards height, less can be done than in respect of weight, chest measurement, staying power and constitution generally. In those regards the reformatory and industrial schools, whatever the material they receive, turn out as fine young animals physically as are to be found in the country, for probably in no class of school in the country has more systematic effort been directed towards the physical improvement of the young.

Though ahead at the age of eleven, the training-ships and country schools have not at the age of fourteen the advantage it might be anticipated over town schools. That the town schools hold their own as well as they do may be ascribed to the fact that, expressly to counteract their drawbacks, they have taken the lead in developing physique on scientific principles. The explanation is an encouraging one, for it tends to prove that the conditions of town life to which physical deterioration is attributed are not irremediable, but by attention to ventilation, food, and physical training, can be improved.

It is stated above that the children entering reformatory and industrial schools, if stunted in physique, are not stunted in mind; on the contrary, they are extremely sharp. Unable to read and write many of them may be, and they have difficulty in setting down an arithmetical calculation on paper; but in quickness of apprehension they are quite remarkable, and will soon make plain to anyone that, for the purpose of driving a bargain and gaining the advantage in any of the ordinary relations of life, neither reading, writing, nor text-book rules of arithmetic are essential.

Dealing with children of this kind, it is found that better progress is made in unravelling their somewhat twisted mental processes by a departure from the ordinary curriculum of the elementary school; by utilising concrete things in place of abstract symbols; by training the hand and the eye as well as the mind; by dovetailing into one another the elements of an industrial as well as a literary education.

The physical training and the combination of industrial and literary training are useful auxiliaries in the moral training of these children. Among them there are few moral imbeciles, to use an expression that seems to be gaining currency, though its scientific exactitude may be questioned. From time to time extremely difficult cases do crop up when some individual boy or girl seems hopelessly corrupt; but in at least nine cases out of ten full inquiry into the circumstances cannot fail to lead one to the conclusion that the individual, though not, so to speak, born deficient in the moral sense, possesses a sense which has been wrongly developed or perverted by the associations of a vicious environment. Admitted that human patience is not inexhaustible, yet, were there time and were there patience enough (patience in worldly concerns often means money), the cases to be fairly regarded as so hopeless as to be styled "moral imbeciles" would be as rare as cases of sexual inversion. I doubt whether there is, among the 20,000 inmates of these schools more than a handful of cases that can properly be styled abnormal. For the purpose of preparing evidence to be given before the Royal Commission on the Care and Training of the Feeble-minded, etc., a careful examination

was made of all cases that had been discharged by order of the Home Secretary from these schools during 1900–1904. It must be remembered that successive Home Secretaries have laid it down that these schools are not to be regarded as asylums in any sense; and it is the duty of H.M. inspectors visiting the schools to call attention to any cases which they do not think susceptible of improvement by the training given in them. The total number discharged by the Home Secretary during the five years on the ground of mental incapacity proved to be fifty-nine—that is to say, twelve a year on a yearly average of inmates of over 20,000. It is reasonable to contend that those fifty-nine cases of proved mental incapacity included practically all the so-called moral imbeciles. Far more important than the admission that among these children there may be one or two who, through some abnormality of physique or mental development, are more likely than others to grow up criminals, is the admission that conditions of life unfavourable to physical development, to the inculcation of copy-book maxims of truthfulness, honesty, cleanliness and the like, have stimulated in a marked degree such fine qualities as self-reliance, courage, enterprise, and patient endurance. Even in cases where these qualities are not conspicuous, other qualities may be said to be always found in full development; one, perhaps, a merely human attribute, the other with a good deal of moral dignity about it as well. The first is affection towards the most miserable home, the most vicious or brutal of parents, an affection only dying away to be replaced by the same warm feeling towards the school and all concerned with it. The second is a sense of justice and fairplay. Even a boy who has no notion of honesty or cleanliness or truthfulness in the ordinary relations of life, either at home or at school, seems to have, deep-rooted in his nature, as clear a notion of what is fair and what is not as any moralist in the pulpit or on the bench. The right way to regard these schools is not as dreary asylums, but as a lively sort of public school containing the very cream of the juvenile street population of the country. It is the very excess of what should be fine qualities that has, in five cases out of six, got the little fellows into trouble.

Whatever may be the case with some children, I believe that a school or institution, call it whichever you please, affords the most efficient and economical way of treating such children as are dealt with under the Reformatory and Industrial Schools Acts. The virulence of the hysterical attacks on boarding-schools of every kind, which culminated some ten years ago, seems to be abating under the combined influence of hard fact and common-sense. One of the grounds of attack on institutions was their alleged unhealthiness. The reformatory and industrial schools are certainly not unhealthy places. They may claim to have exploded at any rate one ridiculous allegation of the past, viz., that ophthalmia is an "institutional" disease, whatever that may mean. Nearly all the reformatory and industrial schools are places of quite a reasonable size, by which I mean large enough, in the case of boys' schools, to provide two teams of sizable boys for playing football and cricket. All that is required to keep clear of such troubles as ophthalmia is a moderate amount of care. The death-rate in the schools during the year ending December 31, 1905—the last year for which complete figures are available—was 3·31 per 1000, calculated on an average number of inmates of 21,744. If the number discharged as unfit for training be also brought

into account, the result is still satisfactory, that rate per 1000 coming to 2·99. Ages ranged from five to eighteen. One detail on which the experience of reformatory and industrial schools throws light is the amount of floor space required per bed in a dormitory. I believe hygienic conditions can be secured by less floor space than is demanded by some authorities. With cross-ventilation and a ceiling 10 ft. high, the superficial area fixed by the Home Office, viz., 36 ft., is found to be ample, with the stipulations that there are scrupulous cleanliness, absence of carpets, heavy stuff curtains, and other sources of contamination. Say what theorists may, you get in many of the Home Office schools glorious health, with an allowance of 36 sq. ft. per bed. When one goes through the medical records, and above all when one sees the boys themselves, it is difficult to resist the conclusion that conditions as regards hygiene almost ideal are reached in some of the farm schools under the Home Office.

A word of caution may be interjected here against too slavish an adherence to merely mechanical means of obtaining hygienic conditions, such as the lavish use of glazed brick and tiles on the walls, insistence on long narrow dormitories with only two rows of beds, etc. Quite as important as mechanical means are those that may be classed as quasi-moral conditions, prominent among which are comfort and the pleasant appearance of things. Reserve tiles and glazed brick for kitchen, laundry, baths and lavatories, and possibly corridors, but do not chill the living-room by introducing them. Washable walls and coloured plaster are preferable, and a dado of matchboarding, or even paper, or a paper-substitute, is more pleasant in texture to live with than one of tiles. Remember that we are building a place to live in, not a railway station or street convenience.

In conclusion, attention may be called to one point which is impressed upon one by experience of the institution known as a reformatory or industrial school. Whatever thought you devote to the perfection of your buildings from the hygienic point of view, it is well every year to give these buildings a complete rest. By some curious law it appears as if buildings need a change or a rest-cure quite as much as human beings; and the practice generally established among reformatory and industrial schools of sending the boys and girls out to the country or some form of camp life for three weeks in the summer seems to have beneficial results, not only on the children, but also on the buildings.

Dr. Boulenger (Bruxelles): Pour les enfants dont parle Mr. Legge, il existe en Belgique les écoles de bienfaisance, pour jeunes gens de moins de seize ans. Malheureusement ces écoles interviennent trop tard en général, lorsque l'enfant a été pris par la police; c'est-à-dire, pour la plupart des cas, au bout de plusieurs années de vols légers, de vagabondage; donc lorsque l'enfant a pris le mauvais pli. Il existe bien à Bruxelles l'institution des Enfants martyrs, qui est très utile au point de vue de la prévention et de l'amendement de beaucoup de cas d'enfants mal traités ou moralement abandonnés, mais si cette œuvre a une action favorable il me semble qu'actuellement elle pourrait devenir officielle et se transformer en une espèce d'asile provisoire de passage pour anormaux ou criminels légers. J'ai vu hier un *remand home* à Londres, qui me semble correspondre entièrement à l'œuvre à réaliser, sauf toutefois qu'elle a le tort de n'intervenir qu'après le passage de l'enfant par le bureau de police. Or, d'après mon expérience, dans les écoles de Bruxelles, j'ai pu constater que certains enfants avaient commis des vols légers, vagabondés durant plusieurs années, avant d'être envoyés à

l'école de bienfaisance. Cependant, les instituteurs et moi-même savions que ces enfants volaient, mais nous étions incapables d'agir sur eux, autrement qu'en les renvoyant de l'école. Le remède était pire que le mal. C'est pourquoi, je crois, que les asiles provisoires pour amoraux (*remand homes*) devraient pouvoir accepter les enfants, même non arrêtés par la police, faire l'enquête sur la famille, et les envoyer ensuite dans des fermes-écoles spéciales pour amoraux, si besoin était. L'œuvre privée des Enfants martyrs devrait donc à Bruxelles devenir une œuvre communale, où un médecin, des magistrats, des personnes s'occupant de philanthropie, interviendraient pour examiner, classer et placer les enfants signalés par la police, les visiteurs des pauvres, les instituteurs, les médecins. Je signale aussi, en terminant l'œuvre des Enfants attraits en justice, présidée par M. Lejeune, ministre d'état, et où les jeunes avocats s'occupent des petits malheureux qui tombent dans le terrible rouage de la police et de la justice.

THE TESTING OF THE HEARING OF 514 MENTALLY DEFICIENT CHILDREN.

By Dr. Alice V. Johnson, *Medical Staff* (*Education*) *L.C.C.*

The system I employed in testing the hearing of these children was that known as "the forced-whisper test." The method is this: the examiner, after emptying the chest, whispers any number from 1 to 100 as loudly as possible without using the voice. The child is placed facing the examiner, at a distance of 20 ft., and is made to repeat the numbers after the examiner, if it can hear them; the child is then made to turn its back on the examiner (to eliminate any possibility of lip-reading), and the examiner uses fresh numbers. If the child cannot hear, the examiner shortens the distance by grades of $2\frac{1}{2}$ ft. until the hearing point is reached.

It was found inconvenient in the L.C.C. buildings to use the extreme test of normal hearing, viz., 25 metres, therefore 20 ft. was the distance used in the examination as the extent of normal hearing, and, moreover, 20 ft. is the extreme distance of the teacher from children in the schoolroom.

The membranes of the ears were examined with the aid of a specular and an electric lamp and the throat with a spatula. Unseen adenoids were not felt for, but, where facial expression, mouth-breathing and discharge pointed to their existence, they were inferred.

The mental status of each child was noted by the teacher and placed in categories I., II., or III., answering to bad, medium, and good. But there is a slight element of uncertainty in this classification, though carefully done, for the various teachers have varying estimates of these three degrees. The mental status of the girls was not accurately enough done, so only that of the boys has been used.

It is well known that the testing of the hearing, even in the normal children, presents difficulties, and these are much increased in the case of the mentally deficient children, as with them one must distinguish between want of attention and want of hearing. These medically defective children become mentally tired so quickly that, in order to avoid false

conclusions in the "forced-whisper test," every doubtful case was tested a second and a third time, with rests between, and finally with a watch, as a counter-test.

Slight perforations and scars on the membrane and wax do not seem to have given rise to much deafness, post-nasal catarrh and retracted membranes being the chief causes of want of hearing. (In confirmation of this I may mention that at the Norwood Poor-Law Schools most of the rickety babies passing through my hands have otorrhœa when cutting their teeth, and it leaves no subsequent deafness.)

The 514 mentally deficient children that I examined were taken from the mentally deficient schools at Deptford, Peckham, Dulwich, Norwood and Battersea, and their ages, except where otherwise stated, were from ten to fourteen.

There was a very large number (49 per cent.) of these generally insensitive mentally deficient children with an unusual quantity of wax in their ears, this wax being so tightly lodged that in some cases it took a trained nurse ten days of careful syringing to remove it. This wax made it impossible to verify the disease of the membrane in some deaf children.

To show the effect of sufficient and insufficient hearing on the mental status of the categories I., II., and III. (poor, average and good mental capacity). In category I. the boys with sufficient hearing were 22 per cent.; insufficient hearing, 14 per cent. In category II., sufficient hearing, 51 per cent.; insufficient hearing, 76 per cent. In category III., sufficient hearing, 26 per cent.; insufficient hearing, 9 per cent.

These figures show that the bulk of the boys with sufficient and insufficient hearing fall into medium category of mental status, viz., No. II.; but in category III., which contains the boys of the best mental status, those of sufficient hearing are nearly treble those of insufficient hearing, showing most markedly how the mental status is lowered by deafness.

In mouth-breathers was found 84 per cent. who passed the hearing test; in non-mouth-breathers, 92 per cent. In mouth-breathers, 15 per cent. failed; in non-mouth-breathers, 7 per cent. In mouth-breathers, 21 per cent. of discharging ears; in non-mouth-breathers, 13 per cent. In mouth-breathers, 43 per cent. of diseased membranes; in non-mouth-breathers, 36 per cent. In mouth-breathers, 22 per cent. of enlarged tonsils; in non-mouth-breathers, 17 per cent. In mouth-breathers, 54 per cent. of adenoids; in non-mouth-breathers, 3 per cent. This contrast shows that the children suffering from deafness, discharging ears, diseased membranes, enlarged tonsils, adenoids and enlarged glands are found in much larger numbers amongst the mouth-breathers than among the non-mouth-breathers.

It may be well to remember that it cannot always be concluded that mouth-breathing in mentally deficient children is a physical defect, but frequently only a lazy habit.

Comparing 1000 normal East-end children who were tested by Dr. Ivens with the 514 mentally deficient children that I tested, this is the result :—

In normal children were found 70 per cent. with sufficient hearing; in mentally deficient children, 87 per cent. In normal children, 30 per cent. with insufficient hearing; in mentally defective children, 12 per cent. In normal children, 20 per cent. with enlarged tonsils; in mentally

defective children, 37 per cent. In normal children, 45 per cent. with enlarged glands; in mentally deficient children, 20 per cent. In normal children, 9·4 per cent. with diseased membranes; in mentally deficient children, 38 per cent. In normal children, 2 per cent. with calcareous deposits; in mentally deficient children, 15 per cent.

In Edinburgh the percentage of normal children with insufficient hearing was found to be 12 per cent., and in a good class suburban school at Bradford 6 per cent.

My inquiry into the London mentally deficient schools shows, roughly, twice the number of diseases in the ears, throats and noses of these mentally deficient children compared with the normal children; but in the case of the enlarged cervical glands 45 per cent. of normal children were affected, against 20 per cent. of mentally deficient children.

It is an unexpected result to find that the percentage of children who failed to pass the hearing test is lower than in the normal children. I think the excellent teaching of articulation and hearing in the L.C.C. mentally deficient schools may be responsible for this satisfactory result.

FAMILY HISTORY AND HOME SURROUNDINGS OF CHILDREN IN THE LONDON CENTRES FOR THE MENTALLY DEFECTIVE.

By F. May Dickinson Berry, M.D., B.S.,
Assistant Medical Officer (Education) L.C.C.

In this paper the results are given of an inquiry made during the past year into the family history of 100 children from schools for the mentally defective, and of an equal number from ordinary elementary schools.

The numbers are small and the data very imperfect; the ignorance of the parents about their own family history, and especially about that of husband or wife being very great, particularly in the case of the parents of the defectives. There was little wilful hiding of undesirable family taints, but much ignorance.

The schools selected were in close proximity to slums. The normal children were from the boys' and girls' departments of the same schools. They were taken, some from each standard, from a register which is arranged alphabetically; as far as possible children inhabiting the same streets as those from which the defectives were drawn being selected.

The Homes.—The greater number of parents were seen at their homes, but, to save time, some were asked to attend at the school and questioned there. The homes were classed as 1, 2, and 3. Those in class 3 were dwellings of a very low type, consisting of one or two rooms, frequently underground. They were characterised by poverty, dirt slovenliness, and often overcrowding. Those of class 2 were somewhat better; one at least of the preceding characteristics would be absent. If a home were poor and wretched, but showed attempts at cleanliness, it would be classed as 2. In class 1 were included all the homes which could be at all regarded as

satisfactory. Absence of signs of extreme poverty, enough space to avoid overcrowding, and tolerable cleanliness were the requisite qualifications. Among the homes of the defectives visited 42 per cent. were in class 3, 36 per cent. were in class 2, and only 22 per cent. in class 1. On the other hand, as many as 60 per cent. of the homes of normal children were in class 1, about 34 per cent. in class 2, less than 6 per cent. in class 3. The difference between the homes of the two sets of children was, generally speaking, very marked indeed.

The Parents.—The difference in the average parents was also very marked. The mothers of the defective children were of lower type than the others, far more dirty and slatternly, and if not definitely mentally defective, certainly of low grade intellectually. Nearly one-third were unable to read or write, or at most admitted they could do so very little. Few were engaged in regular work, but a great many went out charing. The fathers were very largely unskilled labourers. A common story was that they were frequently out of work. Apparently about 60 per cent., as opposed to 30 per cent. of the fathers of normal children, were unskilled labourers. Of the fathers of defectives, nineteen could not read, or read very imperfectly. Among the normal cases six mothers and five fathers could not read. In the case of two mothers and all the fathers the explanation was that they had left school very early ; in very few of the defective cases was this explanation brought forward ; the usual reason given was that they " could not learn at school." Thus, 25 per cent of parents of defectives, as opposed to 5·5 per cent. of normals, were unable to read or write.

Health of Parents.—Twenty-two per cent. of the parents of defectives were said to be delicate, two fathers and four mothers were phthisical ; of the normal parents 12 per cent. were delicate, of these only one was reported phthisical. In the defective class six fathers and five mothers were dead ; in the normal six fathers and four mothers. In both groups three were reported to have died of phthisis.

Families.—In the defective families 636 children had been born, of whom 192 were dead. In the normal there had been 550 births, and 100 children had died. This gives a percentage of 6·2 children born to families of the first class, and 5·5 to those of the second. Of children living, the number is slightly greater in the families of the normals owing to the greater number of deaths. Of the children dead, seventy-three in defective families and fifty-six in normal, died in infancy. Of these, in many cases, no definite cause of death was assigned, it being looked upon apparently as a sort of matter of course that infants should frequently die. As regards the occurrence of convulsions in infancy, a history of thirteen cases was obtained among surviving children in both the defective and normal families. Amongst the infants who had died the numbers were twenty-five to seventeen. This is less disparity than was expected. Zymotic diseases accounted for nearly an equal number of deaths in both classes—*i.e.*, thirteen and twelve. Tuberculous affections caused seven deaths in the normal cases ; in the defective none were recorded beyond the vague term " consumptive bowels " in infants, which generally has little or nothing to do with the tubercle bacillus. There was history of six cases of epilepsy in the defective and three in the normal children.

Other Mentally Defective Children.—In eleven families more than one

child was either actually, or had been previously, in a school for the mentally defective. Besides these cases there were seventeen instances of brothers and sisters admittedly dull and backward at school ; of these two families claimed four each, and one family three cases. There were also two cases of boys in a truant school and one in an industrial school. In the normal families there were two instances of a child being in a mentally defective centre. The following table shows the various points noted in the family history of all those cases where there was more than one mentally deficient child. They are not without interest, and are fairly typical of the cases as a whole.

Synopsis of Points of Interest in Families with more than one Mentally Defective Child.

1. Two mentally defective children. Mother mentally defective ; father is first cousin. Five children living, only one normal ; three are dull at learning ; one of these has had chorea and one melancholia.
2. Two mentally defective children. Mother dull and epileptic. Four children living, one epileptic.
3. Two mentally defective children. Mother cannot read,
4. Two mentally defective children ; one is a triplet (other two died at birth). Mother cannot read.
5. Two mentally defective children. One child dull, and cannot learn to read. Parents cannot read.
6. Two children mentally defective. Father epileptic. Five children living, all had rickets and convulsions.
7. Two children mentally defective. Father attempted suicide.
8. Two children mentally defective. One sister dull and backward, but earns her living. Father cannot read.
9. Four children mentally defective. One sister dull (in service). Parents read ; father out of work ; mother intelligent.
10. Two children mentally defective.
11. Two children mentally defective ; a sister has had chorea. Mother reads, but in mother's family three brothers and one sister cannot read, and two sisters and one brother can read.

Further Family History.—Inquiries were made into the causes of death and state of health of grandparents, uncles and aunts, and the existence in the family of cases of nervous or mental disease. Tubercle, cancer, heart disease, and rheumatism was specially inquired into. My colleague, Dr. Ettie Sayer, made a similar but quite independent investigation a short time previously to mine, the results of which were published in the Report of the L.C.C. Medical Officer (Education) for the year ending March, 1906. The results of both investigations are given on the accompanying tables.

On the whole our results agree fairly well. In Dr. Sayer's tables the preponderance of children born in the defective over the normal families is more marked. Possibly her normal cases came from more respectable neighbourhoods than did mine. Indeed, in almost all the points investigated, the disparity between the two groups is much greater, according to her results, than according to mine. As before mentioned, the figures before us are small, but they certainly bear out the impressions derived from the study of the family history records, which are kept in all the special schools, and from an extensive acquaintance with the fathers and mothers who bring up their children for examination previously to admission into these schools. The chief points which seem to arise out of this investigation are as follows :—

Firstly, it is from the lowest social strata morally, intellectually and

physically that the majority of the children in the "special" classes are drawn. Even when there is not extreme poverty there is often shiftlessness, dirt and wretchedness to a melancholy degree. That drunken habits in one or both parents is very often the cause or concomitant of this wretchedness is undoubted. The degree to which alcoholism was present has not been tabulated, because it was impossible to obtain reliable data except from outside persons who knew all about the families, *i.e.*, district visitors or others, and this there was not the opportunity of doing. Many of the women who stated that the husband was a steady man, and scorned the idea of drinking themselves, were evidently not making statements which could be accepted as facts. But, to enumerate exactly how many of the parents might be regarded as alcoholics was impossible, and to state the numbers only where alcoholism was admitted or self-evident, would be misleading.

Secondly, many of the children admitted to special schools are but the more extreme manifestations of the general type of individual of which the families are largely composed. Dulness and stupidity were more characteristic of these than criminality. We know that, with some exceptions, the children who leave our special schools earn their livings (when they are able to earn them at all) by working at the lowest and worst-paid occupations. They often swell the ranks of the casual labourer and of the unemployed. In so doing they are but following in the parental footsteps. These statistics also bear out what no one who has studied the more extensive records in the family history books can doubt, viz., the greater frequency of nervous and mental diseases and disturbances in the families of these defective children. Cases of insanity, epilepsy, imbecility and chorea are common, and show a greater preponderance than, for instance, cases of tuberculosis, in spite of the unhygienic surroundings, and frequent low physical condition of health, which should form a favourable soil for the latter disease. As regards the actual cause of mental deficiency, it appears in most instances as the result of many factors. First and foremost there is heredity; dull, slow-witted parents are likely to produce slow-witted children, even if the conditions under which they live are of the best; and probably in the same way cases of mental defect will arise in families where other forms of nervous or mental disease have occurred. But surely also anything which interferes with nutrition in early life, both ante-natal and post-natal, is not without effect. Alcoholism in the parent, want of proper food, possibly overwork on the part of the mother during pregnancy, are doubtless all contributing factors, but they hang so closely together that it is difficult to separate them; probably, too, post-natal influences are not without effect. The brain is far from fully developed at birth, and imperfect nutrition can still interfere with its growth. We find rickets frequently associated with mental defect, and the proportion of cases of under-feeding is very large in the mentally defective schools. Further, in surroundings such as those found in many of the homes visited, what kind of moral and intellectual training can there be? The child, possibly by nature backward and of slow growth, is still more retarded in its development by parental neglect, or perhaps even cruelty; it becomes apathetic, spiritless, solitary in its habits, unwilling or unable to play with other children. Possibly it may be one of those (of whom

there are many) which are left shut up alone for hours while the mother is out at work, or possibly less profitably employed.

Alcoholic and feeble-minded mothers alike neglect their infants. As rather bearing on this subject may be cited the experience of the home for feeble-minded girls with infants at North Finchley. There are now in that home about eight children; most of these are attending the infant school, and none of them show signs as yet either of feeble minds or feeble bodies. But there is little doubt that had they been left to their mothers some would have died, and others might have shown signs of mental defect. Scarcely any of the mothers had any idea how to care for the children; several showed very little maternal solicitude; one, if she had the opportunity, would steal and consume herself the food provided for her infant.

In conclusion, the best hope for diminution of feeble-mindedness and for the amelioration of the lot of the feeble-minded seems to be in social progress. To do away with drunkenness, and to alter for the better the present conditions of our social system under which a mass of ill-paid workers are living by casual work at starvation wages, would do much to diminish mental degeneracy. But herein lie the two great problems of modern days, and their discussion does not come within the scope of this paper.

TABLE I.

100 Families of each Class.	Number of Children Alive.	Others Mentally Defective.	Imbecile.	Epileptic.	Tuberculous.	Number Dead.	Died in Infancy.	Died of Convulsions and Teething.	Died of Tubercle.	Died of Specific Fevers.	Still-born.	Miscarriages.
Normal :												
Dr. Berry ..	450	2	0	3	7	100	56	17	2	13	10	?
Dr. Sayer ..	387	0	0	?	2	84	?	19	1	33	12	23
Defective :												
Dr. Berry ..	435	13	1	6	1	192	73	25	1	12	22	?
Dr. Sayer ..	467	24	4	?	4	176	?	48	13	26	17	101

TABLE II.

Parents.			Mentally Defective.	Insanity.	Suicide.	Imbecile.	Epileptic.	Consumptive.	Cancer.	Delicate.	Illiterate.
Normal Cases :	Parents	Dr. Berry	0	1	0	0	1	4	0	17	11
		Dr. Sayer	0	0	0	?	0	3	2	14	—
	Family History	Dr. Berry	2	5	0	0	7	56	12	—	—
		Dr. Sayer	0	7	2	?	6	36	13	—	—
Mentally Defective Cases.	Parents	Dr. Berry	2	4	1	0	5	9	1	37	50
		Dr. Sayer	3	2	2	?	3	13	0	18	—
	Family History	Dr. Berry	17	19	2	3	13	58	12	—	—
		Dr. Sayer	34	29	5	?	8	53	8	—	—

Dr. Stanley B. Atkinson, J.P. (London), considered that once more this paper had enforced the fact that the domestic conditions were continuously at fault, although admittedly Mrs. Berry had chosen for her figures children and parents who resided in slums. Personally, he thought a fallacy must be guarded against, for the better-class artisan and shopkeeper preferred to send his deficient child to a private school (for which he had to pay ninepence a week at least), hence only the poorest children were congregated in the special schools; thus was explained the unclean, unkempt, ragged and underfed condition of so many of these scholars. Hence generalisations are apt to be fallacious if the special school scholars are alone taken for the purposes of statistics. He had found the parents of mentally deficient children too often indifferent to the betterment of their children's condition; even when invited to have a social interview as to the way in which these children should be brought up, very seldom would they come, although they accepted the invitation. He had found that these children were regular and happy scholars in Sunday-schools, and had heard that from Darenth Idiot Asylum a somewhat similar experience was related.

Dr. J. Edward Squire (London): Though the actual figures given by Mrs. Berry in her paper may be open to criticism, there can be little doubt as to the general impression produced by the visits to the homes of these mentally defective children.

There are two practical deductions which may be drawn from Mrs. Berry's papers.

In the first place, there is the disadvantage of dealing with the mentally defective child in a day-school when the instruction of the school is counteracted by the influence of the home and of the street. There is also the undesirability of letting the slightly defective child associate in the school, and probably also outside, with the more serious cases of mental defect.

These disadvantages might be, to some extent at least, obviated if we had in each department above the infants' of every elementary school a "backward" class, where children who cannot get on in the large standard might be under the care of a specially selected teacher. These "backward" classes should be small, not more than twenty to twenty-five. The children who are suffering from arrested development and with curable defects would, after a few months, pass into the ordinary standard and be saved from the disgrace, as the parents consider it, of being sent to the "silly" school. Those who were found to be actually defective would be drafted to the special school.

I would also suggest that the limit of age for the special school should be the same as for the elementary school (fourteen years). There seems little object in keeping the child who cannot learn to read or to calculate, but is otherwise quite fit to earn a livelihood, at school longer than the child who is able to benefit to the full by intellectual education. Children who, by reason of more serious mental or moral defect, require further care should be sent to an institution where the sexes are kept distinct.

In order that mental deficiency should be detected sufficiently early, I would suggest an age limit for each of the lower standards for each school. Every child who remains in a standard beyond the age limit, and every child who, after a year in any standard, is not promoted, should be reported to the medical officer. The medical officer of the school would examine each of these children and decide upon what should be done. In this way the onus of recommending that a child should be sent to a mentally defective school will be taken from the shoulders of the teacher and allocated to the proper official—the medical officer.

Mary Dendy (Manchester Education Committee): Environment is not a cause of weakness of intellect. Drunkenness is not a cause, but a result. Consumption is not a cause. Defectives are in as great number amongst the very rich as amongst the poor.

Dr. Shuttleworth (London) agreed with the last speaker that mental deficiency was not invariably dependent upon parental degeneracy or such environment as Dr. Dickinson Berry had described in her paper. In fact it might be argued with a fair degree of probability that the proportion of children

with mental defect amongst the upper classes of society was not much less than amongst the more degraded, with which most of the papers read in this section had dealt; and the parents of feeble-minded children were sometimes persons of high intellectual endowments, eminent in the State, successful authors, and persons distinguished in the artistic and musical world. In some instances, at any rate, it would seem that the union of two exceptionally endowed individuals eventuated in the production, not of mentally superior, but of mentally inferior offspring. Nature dearly loved an average; and, taking one generation with another, a compensatory mean of intellectual endowment was arrived at, and a minus quantity was apt to follow that which was in excess. Of course the high nervous tension of modern life and the strain of so-called Society duties antagonistic to normal maternity were other factors in the causation of mental defect amongst upper-class children.

LE DISPENSAIRE SCOLAIRE.

Par le Dr. BOULENGER,
Médecin de l'Enseignement spécial de Bruxelles.

LA CONSULTATION MÉDICO-PÉDAGOGIQUE SCOLAIRE.

(*Désiderata à réaliser dans l'examen et le traitement médical et pédagogique des anormaux et des infirmes.*)

IL est une notion qui a pénétré de plus en plus les esprits, c'est la suivante : " Avant d'élever ou d'instruire un enfant il faut savoir ce qu'il est, ce qu'il vaut." Et cela a été un des grands mérites de ceux qui se sont occupés des enfants arriérés ou anormaux de démontrer l'utilité de cette conception.

Il n'est donc plus possible actuellement de continuer les anciens errements scolaires, d'accumuler des enfants dans des écoles, de les soumettre à une discipline rigoureuse et déprimante et de croire qu'il suffit de leur donner des conférences plus ou moins longues et fastidieuses, des devoirs, et des récitations, et de leur imposer l'immobilité pour les développer et les instruire.

Cependant, nous pouvons l'affirmer, en Belgique, sauf des exceptions trop rares, l'école est encore ce bâtiment triste, sombre, lugubre, où l'on joue peu ou pas, où l'on ânonne des *a, b, c* et des *ba, bc, bi* etc. Quant à l'école libre en Belgique, on y fait ce que l'on veut; aucun contrôle n'existe sur elle, même lorsqu'elle est subsidiée; l'inspection pédagogique s'y fait *pro forma.*

On nous dira qu'il est étrange que dans un pays aussi en retard que le nôtre pour l'éducation scolaire, il y ait tant de bonnes idées. Mais cela est dû heureusement à quelques foyers de progrès et d'évolution pédagogique qui sont restés : Bruxelles, Anvers, Gand, Liège, Mons, Charleroi ont su, malgré les entraves apportées à la pédagogie scientifique, résister aux tendances désorganisatrices venant d'en haut. C'est grâce à ces centres que la Belgique fait encore l'illusion à l'étranger d'être un pays où l'instruction est bien donnée.

Quoiqu'il en soit, nous évoluons rapidement dans ces centres, et sous peu le gouvernement se demandera si vraiment il comprend encore quelque chose à l'instruction. C'est ainsi donc que les écoles de Schaerbeek, d'Houdeng Aimeries, de Bruxelles, de Charleroi, etc., ont adopté une fiche scolaire de renseignements (1) sociaux, (2) médicaux, (3) pédagogiques.

L'éducation humaine est en effet si délicate, si difficile, que l'adoption de règles uniformes et générales dans l'instruction ne peut se faire que pour des notions générales peu nombreuses. Les méthodes trop fixes, trop figées, sont mauvaises.

Il va donc de soi, que la création de dispensaires scolaires nombreux est des plus utiles. C'est là seulement que le pédagogue pourra s'assurer, avec le concours du médecin, de l'éducabilité des enfants. Là seront recuellis une série de renseignements sociaux, médicaux et psychologiques qui éclaireront singulièrement bien l'instituteur sur ce qu'il a à faire et sur ce qu'il peut faire.

Et tout d'abord le médecin, mis au courant des tares pathologiques familiales, des antécédents de l'enfant, pourra—ensuite d'un examen physique portant sur l'anthropométrie et la santé générale de l'enfant, d'un autre examen portant sur les valeurs des sens : vue, ouïe en particulier, fait par des spécialistes, puis sur la valeur psychique de l'enfant, à l'aide de cette admirable méthode des tests mentaux, imaginée en Allemagne, en Amérique, perfectionnée en France par Binet et en Italie par Sancte de Sanctis, puis sur la valeur sociale de l'enfant, ses réactions sociales—pourra, disons-nous, dire à l'instituteur, comme conclusion pratique : Enfant à mettre dans l'enseignement spécial, enfant à envoyer au spécialiste, enfant à envoyer à la campagne, enfant tuberculeux à traiter d'abord, etc.

Mais ces dispensaires feront des recherches plus spéciales : l'effet de l'école sur l'enfant et l'instituteur ; l'effet du séjour en colonie, etc.

Puis il provoquera une série d'observations de l'instituteur sur les interréactions des écoliers, etc.

Il faudrait au dispensaire : une toise, une bascule, un dynamomètre, un céphalomètre, un compas d'épaisseur, des appareils pour les recherches des tests, des appareils pour l'acuité visuelle, l'indice de réfraction de l'œil, pour l'ouïe, pour l'odorat, le goût ; des chronoscopes, un appareil photographique, une chambre noire, et en plus un appareil cinématographique pour un groupe d'écoles. Au lieu de parler d'impressions vagues, de sentiments, au sujet de l'état des enfants, on aurait une notion exacte de chacun.

Les aptitudes étant connues seraient mieux utilisées, mais aussi seraient refrénées au besoin, pour faire la culture complète de chaque enfant.

Les anormaux classés de suite, seraient répartis plus logiquement, et on ne verrait plus certains de ceux-ci punis, renvoyés des classes normales, alors que ce sont des tarés. Les parents eux-mêmes ne contesteront plus la valeur de ce classement, voyant le profit qu'ils en tireront.

C'est pourquoi nous croyons pouvoir émettre le vœu que toute école ait un dispensaire scolaire, pour sélectionner les anormaux, des normaux.

Nous savons que dans l'enseignement libre, il sera impossible de faire appliquer cette mesure ; aussi, cela démontre que cet enseignement ne peut être qu'une tolérance et pas un idéal. Cet enseignement, qui manque

des entraves administratives, aurait dû montrer la voie chez nous. C'est en réalité une simple exploitation politique et religieuse de l'enfant. Il n'applique aucune des nouvelles mesures ; l'hygiène et l'inspection hygiénique de ces écoles n'existe pas. On y a les classes que l'on veut comme cube d'air. Et la loi, qui impose au particulier, patron, des mesures d'hygiène, ne trouve pas le moyen d'imposer au particulier qui exploite les écoles une inspection hygiénique et des sages mesures d'examen des enfants à l'entrée des écoles libres.

C'est là une situation étrange et mauvaise.

Nous espérons que nos législateurs sauront s'occuper de l'avenir de la race humaine en créant et en forçant les écoles libres à adopter le dispensaire scolaire ou bien à envoyer les enfants de ces écoles dans les dispensaires des écoles communales. Il va de soi que l'instruction obligatoire est nécessaire pour réaliser cette mesure d'une façon générale.

L'organisation pratique pour les parents serait la suivante : la consultation du dispensaire scolaire se ferait le soir vers huit heures jusqu'à dix heures, après les heures de travail des parents, ou bien le dimanche après-midi, pendant quinze jours en octobre, huit jours en avril, dix jours en juillet. Les parents seront informés du traitement médical à faire subir à l'enfant pour le rendre apte à vivre dans l'école, pour leur conseiller de meilleures méthodes d'éducation, pour faire envoyer l'enfant à la campagne ou pour le faire assister en justice. Car un juriste serait adjoint aux instituteurs et médecins du dispensaire.

Comment protéger les Anormaux en Âge d'École.

Beaucoup d'anormaux en âge d'école échappent à l'école, précisément parce qu'ils sont anormaux. Les parents n'osent pas les montrer ou bien les laissent croupir dans leur gâtisme, leur malpropreté. Pour les plus atteints cependant l'asile ouvre dans tous les pays, très largement, ses portes. Mais les demi-utilisables servent à exciter la pitié des membres des sociétés charitables et de la bienfaisance publique. Grâce à eux, l'indigent voit ses secours augmenter dans de fortes proportions. Il vit en somme de la misère intellectuelle de son enfant. Il a donc tout intérêt à n'en pas faire un homme sachant se tirer d'affaire. Là où existe l'instruction obligatoire la question est déjà très épineuse, très difficile à résoudre. Il faut une surveillance très sévère des parents pour les obliger à exécuter leurs devoirs. Comment agir là où il n'existe aucune obligation à l'instruction, comme en Belgique ? Par la persuasion. Mais qui persuadera ? Des visiteurs des pauvres, des gens charitables ? Mais aucun d'eux ne connaît l'importance de la question. Alors donc il faudrait créer de véritables explorations des quartiers pauvres pour faire la chasse aux anormaux, pour les recueillir, les protéger contre l'incurie paternelle. Mais, ne va-t-il pas se trouver de ces gens à paradoxes politiques pour nous dire que nous portons atteinte à la liberté des parents ? Car il est certain qu'ainsi nous les empêcherons de faire ce qu'ils veulent de leur enfant. De même que la désinfection porte atteinte à la malpropreté des pauvres, de même l'instruction porte atteinte à la bêtise ou à l'imbécillité mentale. . .

Encore s'agirait-il de savoir si un père est libre de faire de son fils un anormal, ou un être incapable de vivre dans notre société actuelle.

La première mesure à prendre donc en faveur des anormaux en âge

d'école est l'instruction obligatoire. Souhaitons que tous les politiciens, malgré leur mentalité étroite, comprendront cette première nécessité.

La deuxième mesure serait donc l'exploration systématique de tous les quartiers pauvres, et le signalement des anormaux y existants.

La troisième mesure serait le signalement par la police, aux sociétés protectrices de l'enfance, des enfants arrêtés par elle, ou connus notoirement par elle pour être des enfants mauvais.

La quatrième mesure serait le signalement par les visiteurs, médecins et infirmières des pauvres, des enfants anormaux.

La cinquième mesure serait la constitution d'un comité d'examen des anormaux, constitué par des juristes, des médecins, des pédagogues et des philanthropes, examen portant sur le côté social, médical, pédagogique de l'enfant.

La sixième mesure serait la création des institutions où la collocation de l'anormal ne devrait pas exister, où les traitements médical et pédagogique basés sur la psychiatrie et la psychologie seraient appliqués. Des colonies pour délinquants seraient souhaitables, pour arriver à l'amendement des enfants. Des instituts très vastes à la campagne devraient exister dans tous les pays, pour les anormaux.

La septième mesure serait la création de comités de surveillance des enfants sortis à l'essai, ou même définitivement, de ces établissements pour savoir ce qu'ils deviennent dans la suite.

La huitième mesure serait la création de relations entre les multiples et différentes institutions s'occupant de l'enfant ; depuis l'école ordinaire jusqu'aux écoles pour indisciplinés, vicieux, ou vagabonds, jusqu'aux écoles pour anormaux mentaux, même jusqu'aux institutions pour idiots et imbéciles.

Les différents établissements seraient obligés de se transmettre les renseignements recuellis par eux. On serait souvent étonné de voir les changements radicaux obtenus par la mise de l'anormal dans l'institution lui convenant exactement.

Les timorés, ou les amis du passé, me diront que tout ceci est de l'utopie. Je leur répondrai que les différents grands pays du monde ont réalisés partiellement tous ces désiderata.

Et quand je dis réalisé, j'entends la chose au point de vue objectif. Ce ne seront pas de vagues lois qui servent à éblouir l'étranger, mais des œuvres tangibles et réelles. Il existe malheureusement de par le monde trop de pays où tout se réduit en des textes ou circulaires ministériels très beaux, mais jamais appliqués. Il faudrait que les Congrès internationaux démasquent un peu plus souvent ces " bluffs," et mettent en demeure les dirigeants d'appliquer leurs lois.

CHILDREN IN EPILEPTIC SCHOOLS.

By Alan McDougall, M.D.,
Sandle Bridge Epileptic Colony.

There are a number of epileptics who are good useful citizens. In spite of occasional fits, they can hold their own in the world, and even attain to positions of great distinction. To those who do not see them in an actual fit they appear to be ordinary normal people. Such people are an exception in a colony for adult epileptics. Before an epileptic is sent away from home he has usually become a nuisance to his friends. He has acquired, partly owing to the course that the disease has taken in his case, partly owing to mishandling by his friends, certain unpleasant characteristics. That many of the unpleasant characteristics of the epileptic are the result of mishandling, and are not necessary symptoms of epilepsy, is patent to anyone who lives with a large number of epileptics and notes the improvement that is effected in their behaviour, as well as in their health, by discipline and judicious handling. There is a very different class of epileptics—the dangerous people who require restraint in an asylum. They require to be certified as lunatics, and, in England, are not eligible for residence in the existing epileptic colonies. The case is different in Germany ; but in England colonies can deal only with epileptics who are fairly well-behaved.

At a colony we do not class epileptics ; we regard each colonist as an individual, and treat him according to his own requirements. But for convenience in this paper I will call the three groups mentioned above the " model," the " troublesome," and the " dangerous."

In contrast to an adult colony, an epileptic school contains a considerable proportion of children who belong to the first group. A reason for the difference is this : If a child has a fit in school it disturbs the whole class and interrupts the lesson ; consequently the authorities lose no time in sending the child to a special school, if a vacancy can be found, and if the consent of the parents can be obtained. The cost of keeping an epileptic in an institution is much greater than the cost of keeping him at home. This delays the admission of the adult to a colony, but, as children can be put upon the rates for the purpose, without being labelled pauper, financial considerations hardly delay the admission of the epileptic child. Thus epileptic children reach institutions at an earlier stage of their disease than is the case with adults. This early capture of the epileptic child will become more and more prevalent, and the proportion of model to troublesome children in an epileptic school will become greater and greater.

A number of these children will quickly cease to have fits, and will remain free from them during the rest of their stay in the school ; that is to say, you will have in a special school a number of children whom you will not be able to distinguish from the children who attend ordinary schools. They will behave like normal children ; they will have the desires and the needs of normal children ; they will show no perversions ; they will not be dangerous to themselves or to others. Yet it would be unwise to discharge them to their homes ; they may at any time relapse.

Sooner or later they will return to their homes. It might or it might not be well to remove all epileptics from their homes and keep them for life in colonies well adapted to promote their happiness. The question is one of no practical importance in a country where even compulsory vaccination is impossible. Education committees must face the fact that many of the children will escape and return to their homes for a time, if not for long. If the parents think that the child is worth the cost of its keep, they will recapture that child.

Assuming that the children will return to their homes (and we know from experience that they do), it must be the care of the managers of the school to prepare the child for that return. If you take children away into the country and keep them there for several years, always under narrow supervision, always under orders, never using their own judgment, meeting no adults but their nurses and teachers, and perhaps, occasionally, their parents, and then return them suddenly to the slums of a town, you are morally responsible for the tragedies that will occur. If the children are to face the world later they must not spend their childhood wrapped in metaphorical cotton-wool.

And even if the children were to spend the rest of their lives at a colony, it would still be malpraxis to over-protect an epileptic. If you inspect an epileptic colony and find no bruises, you may infer that there is something wrong. Fear of accidents is the bane of the home-treatment of the epileptic. I do not suggest that you should erect swings in the playground of an epileptic school; I do not recommend epileptics to ride bicycles; I much prefer bungalows to storied houses; but I should know myself to be a very incompetent practitioner if I, to spare myself anxiety, tried to keep my epileptic patients from all theoretical risks. Most of the children of the David Lewis Colony School go home for a fortnight twice a year. The theoretical objections to this course are numerous and obvious, but they do not outweigh the advantages; and up to the present we have had no reason at all to regret having adopted it.

We were driven to it, for we found that we had to deal with bright, intelligent children, who had the longings and interests of ordinary children, not with imbeciles who neither knew nor cared where they were. If you remember Wordsworth's Pet Lamb you will understand that there are limits to the restrictions that you can wisely impose upon children. Discontented, unhappy children are not likely to cease to have fits. Our children will submit patiently to any restriction that they know is imposed on all children, but they resent all special restrictions. However necessary, a restriction is always an evil. Before imposing a restriction you must carefully weigh the probable good and the probable evil that will result.

The less you remind an epileptic that he is abnormal, the greater your chance of restoring him to health. You must therefore not shut up well-behaved children with dangerous children in a school, for if you did that you would have to impose unnecessary restrictions on the well-behaved, and do them harm.

The epileptic is a much misunderstood person, because there is so much difference between one epileptic and another. Men who have learned to know epileptics from their experience in asylums and men who have learned to know epileptics from experience in colonies give very different descriptions of the epileptic. We of the colonies regard epileptics

as human beings, not as monsters. Workmen living on the colony do not hesitate to let their young children play about freely in the midst of the colonists.

To touch very briefly on the supposed sexual proclivities of epileptics as a class. At the David Lewis Colony the men's houses and the women's houses are not far apart. No wall or fence separates them. Every Saturday night, summer and winter, the men and the women meet in the recreation hall and dance together. The colony has been in being for almost three years, and we have not yet had any trouble. The sensuality of the epileptics found in colonies is a delusion propagated by people who have a morbid craving to discuss sexual matters.

Epileptic children are at present in very great danger. Education committees are beginning to take possession of them. Special schools will be built. The danger to the children is that the rules for the management of those schools will be framed by people who have abundant hearsay information about epilepsy, but no knowledge or experience of epileptics. Numbering half a hundred epileptic children among my personal friends, I plead, on behalf of epileptic children, that you will not impose upon them cruel, hurtful, and unnecessary restrictions.

THE BREEDING-BEDS OF MENTAL DEGENERACY.

By Robert R. Rentoul, M.D.

In the past years attention has been given more to the care of the degenerate than to the prevention of degeneration. Perhaps this upsetting of the golden rule, to the effect that prevention is better than cure, is due in part to the idea that all disease is the outcome of an offended deity. Did we honestly believe in prevention, we would pay more attention to the breeding of a healthy people; and the physician, and not the parson, would occupy the foremost place in deciding the grave question "who should marry whom?" But when we permit lunatics to marry and produce children, when we allow deaf-mutes, epileptics, dipsomaniacs, drug *habitués*, kleptomaniacs, and the physically diseased of all kinds to marry, and permit the lunatic — alleged by the Lunacy Commissioners to be "recovered"—to leave the asylum and resume marital relations, and refuse permission to many healthy persons to marry, it does not require much inquiry to find out what and where are the breeding-beds of mental degeneracy.

At present the English birth-rate is falling. It will fall to a much lower point, even lower than that of France. And, along with this falling-birth-rate, we have the sad fact that it is only amongst those who are not likely to breed a good race of children that the birth-rate is highest. That is, those who are physically, mentally and socially best able to bring forth children, now refuse to do so. A slum population is a curse to a nation, but is trebly a curse when the parentage of the future citizens is

left to a slum community. Even doctors might take to heart the question of the great sociologist, "Can men gather grapes of thorns or figs of thistles?" or his other statement, "A good tree cannot bring forth evil fruit, neither can a corrupt tree bring forth good fruit."

I would suggest that there is one breeding-bed which we should carefully watch, namely, those degenerates known as the "mentally backward" children. Our present effort is to "fake" these children so that they may be passed off as *compos mentis*. Such are our efforts to hide the present sad total of mental degeneracy that we will deceive ourselves and call such poor sufferers any name whatever, so long as we do not term them idiots, imbeciles, feeble-minded, epileptics, or insane. Perhaps the mere specialist obtains some consolation by terming a child a "mentally backward" person. But he knows that such a child, even when "faked" into the mere outward resemblance of a mentally healthy child, is certain to fail when it has to go through the battle of life and face the strain of competition. He knows it is almost certain to have degenerate offspring, and he certainly would not obtain much pleasure by seeing his son or daughter joined in marriage to a mentally defective person.

At present there are in England and Wales 150 special schools for mentally defective children, with an average attendance of more than 6000 children. What will happen to our nation when these children grow up, marry and produce offspring? The birth-right of every child is to be healthy and happy. But how can the products of such unions be either healthy or happy? We fail in our duty when we neglect to warn the public of the very grave conditions now existing.

What should we do? I put forward the following proposals:—

1. Raise the present ages of marriage from twelve for the female and fourteen for the male, to twenty-one for the female and twenty-five for the male. There is no good to be derived by denouncing child marriages in India, at Exeter Hall, when we allow child marriages in England, although it is said that our marriage laws are the very foundation of society.

2. Make it illegal for any commercial or other agency to dismiss, or refuse to employ, any married person above the required age who is healthy. Some thousands of persons to-day in England are refused employment only because they are married.

3. Make it illegal for the diseased to marry. It seems a strange condition of affairs that to-day, if a man engaged to be married to a woman finds that he has some disease which will injure himself or herself if he marry, or injure the offspring, he cannot make this a successful plea in an action for breach of promise to marry.

4. Make it illegal for any person to issue a permit or licence to marry, or for any person to join in marriage any person who has not produced a prenuptial certificate of good health. What right, legal or Christian, has any diseased man to hand on his disease to a wife and children? Under which of the moral laws do we sanction the present disgraceful state of affairs? It is more than absurd for anyone to object to a medical examination before marriage. Life insurance offices, the army and navy, mercantile marine, civil service, municipal service, educational department, police, banks, post office, and many others, now insist upon medical examination before entering upon employment. Under the Workmen's Compensation Acts some millions of employees have now—or will soon

have—to be medically examined. So have militia and volunteers, and so have the members of friendly and similar societies.

5. Make it illegal to join in marriage any lunatic, inebriate, idiot, epileptic, deaf-mute, dipsomaniac, drug *habitués*, or sexual pervert. What is the good in our ranting about prenatal culture when we allow these strongly-marked degenerates to marry and produce diseased offspring ?

6. Make it illegal for paupers, vagrants, criminals, and all who cannot show that they are able to support a wife and family, to marry. The State of Denmark has a law bearing upon this. In our country no person is so degraded, so lazy or work shy, so diseased, so criminal, so destitute but that he or she can marry.

7. Tax any bachelor who refuses to marry if he is healthy and between the ages of twenty-five and fifty-five, and if he can get a healthy woman to be his wife.

8. Graduate the taxation on married men according to the number of their families. Year by year it becomes more difficult to support a large family. Those who have a large family are performing a duty to the nation, and consequently they should be rewarded.

9. There is no good to be effected by making such laws as proposed above for the guidance of idiots, imbeciles, feeble-minded, lunatics, deaf-mutes, dipsomaniacs, drug *habitués*, sexual perverts, and others, in which reason, will-power, and self-control are absent. Here the law of non-responsibility comes in. To meet such cases I have proposed that they be sterilised. so that they cannot hand on their degenerate conditions to any offspring. Hallectomy in the female and vasectomy or spermectomy in the male are simple operations, and can work only for national efficiency. I am glad to be able to say that in February, 1907, the State of Indiana adopted my proposal, and has passed an Act legalising sterilisation. I am told that the States of California and Pennsylvania are likely to follow the historic action of Indiana.

The mental degenerates in the United Kingdom are costing the British taxpayers at least £50,000,000 every twelve months. If by this expenditure we could tell the taxpayers that some beneficial results shall be secured to the nation, then the expenditure would be of some national value. But at present our inaction means in reality that more and more money will be required each year, and that the more degenerates we permit to procreate the greater will be the yearly increase.

If we wish for national efficiency, then race culture must be given proper consideration. If we wish for national deterioration or degeneracy, then we must adopt—and we have now adopted—a policy of race suicide.

Mr. Henry F. Pooley (Hampstead) remarked that, if the paper was to be taken seriously, he agreed with the previous speaker that it violated common-sense and good taste, and was beneath the dignity of the Congress. But he gathered from the tone of the paper and from the fact of Dr. Rentoul's failing to appear in support of his views, that the writer had been carried away by his sense of humour, and that in the main the production was to be taken as a joke. The proposal to prohibit the marriage of women under twenty-one, and of men under twenty-five, was undesirable and impossible. The proposal to make illegal the dismissal of or the refusal to employ healthy married persons, if it could possibly be enforced, would encourage the overwork of mothers of young children to the serious detriment of the young families.

The subject of the sterilisation of degenerates deserved serious consideration, but Dr. Rentoul's flippant treatment of it and his wholesale proposals

for the application of the process in sweeping and indiscriminate fashion were little better than absurd, and could only delay the scientific discussion and reasonable settlement of a most difficult subject.

A. J. SCHREUDER (Arnhem, Holland) says that there are two sides in this question. The first is the scientific—the biological. This side of the question is not at all ripe for decision. The other one is the practical; and in this direction I suppose the paper of Dr. Rentoul to be very serious. He has told all young men who are healthy: you must marry; and to all who are married: you must have a large family. At this time it is necessary that the public opinion of civilised people should be cleared and brought up to a higher level.

Dr. BOULENGER (Bruxelles): Dans la communication de M. Rentoul, la prévention est surtout visée, elle est très importante tant au point de vue social que médical. Mais dans l'application, je crois que la loi qui édicterait des mesures contre la réproduction des anormaux serait mauvaise.

Je rappellerai le cas cité par le Dr. Ley, d'Anvers, d'une mère idiote ayant eu un enfant avec un dégénéré et dont l'enfant devint, au bout de quelques années d'enseignement spécial, un être normal, capable d'être un bon ouvrier. Les questions de dégénérescence sont encore trop obscures aujourd'hui que pour conclure à des moyens sociaux et généraux.

Miss DORA KEEN (Philadelphia) reported that the Bill referred to in Pennsylvania, in Dr. Rentoul's paper, was passed by the Legislature of Pennsylvania but was vetoed by the Governor of the State on technical grounds as not so worded as to afford adequate safeguards.

Dr. STANLEY B. ATKINSON, J.P. (London), defended the absent author. The views expressed were neither crude nor charlatan. Dr. Rentoul had worked for years at the subject and in the few minutes allowed was only able to give a skeleton. It was the grinning skull which had tickled the sense of humour of the listeners. To create discussion it was well to be pungent and emphatic. As a guardian of the poor in East-end London, he would like to instance two classes of cases where sterilisation would prevent what he ventured to describe the repetition of acts of practical atheism. He knew of wretched, low-browed, feebly-developed inmates in workhouses who would discharge themselves periodically, live together as man and wife for a week or two, and then return to the house—the woman pregnant; this would happen repeatedly in the case of the same couples. Further, in the London county asylums there were about a dozen women, mostly spinsters, who appeared annually in an advanced state of pregnancy, and in an insane condition; they were delivered, fed up and discharged, to come back again during the year. At present there was no means of preventing such scandalous conceptions. Dr. Rentoul's surgical scheme would peremptorily rid the race of this part of the problem; it might, however, introduce consequential social anomalies and perils. At present the marriage laws protected property rather than persons, and there was a tendency to give truth to the cynicism "The hand that *wrecks* the cradle rules the world."

SECTION IX.

SPECIAL SCHOOLS FOR BLIND, DEAF AND DUMB CHILDREN.

ÉCOLES SPÉCIALES POUR ENFANTS AVEUGLES, SOURDS ET MUETS.

SONDERSCHULEN FÜR BLINDE UND TAUBSTUMME KINDER.

President.

The Right Hon. the Earl of Crewe, P.C., Lord President of the Council.

Secretaries.

B. P. Jones, London.
The late William van Praagh, London.

THE MENTAL CHARACTERISTICS ASSOCIATED WITH BLINDNESS OF VARYING CAUSATION, AND THEIR RELATION TO TRAINING.

By N. Bishop Harman, M.A., M.B. (Cantab.), F.R.C.S. (Eng.),
Oculist, London County Council Blind Schools; Ophthalmic Surgeon, the Belgrave Hospital for Children.

The sense organ on which a normally constituted man most relies to judge of his relation to things material is the eye. The whole tendency of the evolution of the physical characters of man has been to improve his capacity for an exact judgment of the character and position of objects by the use of his eyes. His erect position increases the range of his vision, the development of the yellow spot in the retina is correlated with a special power for exact vision, and the flattening of the face and the bringing of the eyes from the sides of the head to the front enables the two eyes to act as one, with the result that binocular or stereoscopic vision, that master-key of visual powers, is possible. Without such a development of visual powers as these the position of man in the scale of animal life would have been impossible; for the development of the highest cerebral faculties are so intimately connected with the interworking of hand and eye that without this master-key—stereoscopic vision—we can hardly conceive of the development of that cunning or craftsmanship which makes man what he is.

If then, in a very real sense, eyes have made man, what must be the loss to a man of the power of vision!

In the preparation of this paper I have confined my attention to observations derived from the examination of the children of the blind schools of the London County Council. During the past five years nearly four hundred of these children have passed through my hands. Many of them I have seen repeatedly, and it has been a matter of interest to note their varying mental capacity, and to attempt to discover how far their capacity and intelligence was affected by their blindness and the special nature of their blindness.

In looking over the diagnoses of the conditions from which the blindness of these children arose, I find them ranged over as many as twenty different heads. To attempt to label each one of these twenty varieties of blindness with a peculiar psychological characteristic would be a sorry task both for you and me. The conditions, however, can be easily and satisfactorily arranged under certain broad groups.

1. Blindness due to causes which are in their nature accidental.
2. Blindness due to general disease in which the child is born and shapen.
3. Blindness due to congenital deformities.
4. Blindness or partial blindness due to disease of the eye alone.

Nearly 90 per cent. of all forms of blindness fall easily into the first three of these groups. The fourth is a small group comprising a comparatively small number of children. Yet from the peculiarity of the condition they are of considerable importance, and they are increasing in number.

Then there are a few cases of partial blindness due to constitutional causes, not necessarily due to inheritance, but these will call for but small note.

Group I. Blindness due to Causes which are in their Nature Accidental.

This group covers a very large proportion of the cases of blindness amongst children. 44 per cent. of those in the L.C.C. schools are therein included. In most of these, blindness has followed destruction of the eyes by reason of the accidental inoculation of the surface membranes of the eye with some virulent micro-organism. In a few the eyes were injured by blows, foreign bodies entering the eyes, and so forth, which set up inflammation of such a serious kind that the eyes were destroyed.

Of this group of cases 84 per cent. (or 37 per cent of the total blind) were blinded by the purulent ophthalmia of the new born; of the remainder, purulent ophthalmia in later years accounted for 7 per cent.; accidental injuries and sympathetic inflammation therefrom 7 per cent.; and small-pox 2 per cent. Although the great majority of these causes producing blindness are what we regard as diseased conditions, yet they are really in the nature of accidents. No child need suffer from purulent ophthalmia at birth; the disease is preventible. The eyes only exhibit the inflammation when foreign matter—in this case the micrococcus of Neisser—has been inoculated into the eyes.

In days not far remote, in our own land—and even now in the East—purulent inflammations in the later years of life blinded innumerable eyes; and the present smallness of the total of blindness resulting from

this cause is striking testimony to the efficacy of modern medicine. Small-pox was formerly even more notorious as a blinder of the eyes of the young, but now the tale of the blinded has shrunk to insignificant proportions—and, let it be noted, those on my list so affected had not been vaccinated.

Accidental injuries to the eyes of children and the disastrous sympathetic inflammation which may follow therefrom are not so common amongst children as amongst adults. Adults run greater risks by reason of their occupations, and children would run fewer risks than they do were the atrocious game known as " tip-cat " less popular in its season.

Group 2. Blindness due to General Disease in which the Child is Born and Shapen.

This is a large group, perhaps a good deal larger than our present knowledge leads us to suspect. Certainly 20 per cent. of the total, probably 30 per cent., represents the tale of blindness due to this one cause—syphilis. Through disease in the parents the children are born and bred in disease. These unfortunate children cannot be more accurately described than by the words of that most ancient of laments " born in sin and shapen in iniquity."

The eyes do not suffer alone; ears, teeth, limbs, physiognomy, and brain suffer also in more or less degree. As when the bell-founder has poured his metal into a defective mould he gets a bell from which no true note can be got, so it is with these children.

Group 3. Blindness due to Congenital Deformities.

This group accounts for some 20 per cent. of the children. It forms a collection of physical oddities or misfits. For some reason the nourishment of the infant developing within the mother has been arrested at certain points, and one or more parts of the body remain unfinished at the time of birth. Such defects in initial development cannot be made up afterwards, they remain permanently. A few can be dealt with to a slight extent by the eye surgeon, but for the most part they are irremediable. The defect may be confined to the eye, or, besides the eye, other parts of the body may be similarly affected. The eye, as an organ of vision, may be so ill developed as to be practically useless; or its development may be arrested at such a point as to permit of some vision, but not of sufficient quantity to be of prime service as the organ of sensation.

Group 4. Blindness due to Disease of the Eye alone.

This group is a small but important one. It comprises those children who are highly myopic, *i.e.*, extremely short-sighted. Properly speaking, they are not blind. And this is a point which will be of the first importance in considering their training in school.

There remain a small number of cases which do not fall under any of these four groups, cases where the optic nerve has been affected by some constitutional disease affecting the child in the earlier years of life, acute infectious diseases affecting the membranes of the brain and causing atrophy of the optic nerves. These cases are happily not

numerous, they do not, so far as I could determine, account for more than 5 per cent. of all the cases of blindness.

A very few cases of partial blindness appear in these schools in which the cause is a general debility of body, or a strumous diathesis. In these the cornea suffers acute and relapsing inflammations of a destructive kind: such children are better in convalescent homes than in schools. Lastly, a very few are blinded in early life by malignant disease—"cancer" of the eyes—which necessitates the removal of the eyes for the preservation of life: these are so few that amongst all those seen in the Council schools there was only one child so blinded.

Mental Characteristics.

Let us now consider the mental characteristics of these blind children, and see how far the grouping, by reason of physical conditions, can help us to understand their mental condition and to shape our mode of training to that condition.

Let me say first, that of all defective children there are none more generally happy and cheerful than the blind. In contentment of disposition they far excel the deaf or crippled. And I think it is as much to this genial temper as to a recollection of their loss that we may credit the great interest exhibited in the blind. Good temper is much in education, and I think teachers in blind schools appreciate this.

This character is particularly noticeable in the large first group of cases—those blind by reason of accidental causes. These children are, from every point of view, the best material you teachers of the blind will get into your hands. You may hope for the best results from them. The group is also a hopeful group by reason of its being a diminishing quantity. The increase of carefulness at the time of birth and in later years, the promptness with which diseases of the eyes come under treatment, and the increasing facility for and improvement in the methods of eye treatment, all go to diminish this great group.

These children are normal, except in point of sight. Physique, hearing, and intelligence are not bound up in a general depression by reason of disease. The actual diseased condition producing the blindness has but a short duration, and once the shock of the disaster is recovered from there is no reason why all the physical and mental capacities of the child should not be as successfully developed as they can be in a normal child. In one sense a blind child of this group has a better chance of obtaining a successful cultivation of its remaining capacities, for that sympathy for the blind which has been so marked a feature of philanthropy during the past two hundred years has been turned into most practical directions, and it has been unhampered by any foolish aping of a shadowy scheme of a liberal education which still weakens our general educational system. In every way the senses of touch and of hearing have been brought under successful cultivation, so that a blind child of average intelligence can realise in a concrete fashion the current ideas of the community. By ear-gate and the road of the fingers the mind of the child can be brought into relation with his surroundings with a very complete success, even though the more facile eye-gate be closed.

Of course there will be variations in the intelligence of these children, in their response to stimuli, and their capacity for receiving communi-

cations, just as there is in ordinarily sighted children. We shall find the great majority of them fall in a group of average capacity, rising gradually from those who are just of fair capacity to a higher level of considerable ability. At either ends of the slope there will be a small selected group, the one the dunces, the other the clever ones. This curve of capacity has been demonstrated in examination results time and again, and it is as easily demonstrable amongst these children as in the sighted.

The present mode of educating the blind in reading, writing and ciphering by the cleverly arranged embossed types, in numerous manual employments, in typewriting, in printing, in music, and so forth, seems to be admirably adapted to this large first group. It is right in its principles, and its details will vary with local circumstances and the possibilities of remunerative employment in after life. Whatever the pedagogue may say to the effect that a liberal education must not be of an order directly conducive to earning a decent living, there is no one who does not doubt that the first and the last desiderata in teaching the blind are to turn everything to the end of their independence in later years.

When we come to consider our second group of cases—those blind by reason of disease in which they have been born and shapen—we find quite a different state of affairs to that we have just considered. The disease which causes most of these cases is one which affects one or both of the parents of the child; the disease of syphilis is due to infection with a micro-organism, the *spirochæta pallida*. This organism is perhaps the one which, of all those known to man, is most penetrating and most saturating in its effects. The man or woman infected by this organism will show the effects of its action in any or every part of the body, and at any of the remaining periods of life, unless there be satisfactory treatment; and a child born to affected parents is saturated with the poison from its conception in the same degree in which the disease affects the parents.

A child born under such conditions is liable at any period of life to show signs of degeneracy of its tissues, and the more special and highly developed the tissues, the more liable are they to be affected.

Bones, skin, teeth, ears, eyes, brain are all liable to degeneration, and it is because of this we find so large a percentage (20 to 30 per cent.) of blind children in our second group.

How the disease acts on the eye, whether by producing an interstitial keratitis, or a choroiditis, matters not here. The point of importance is the remembrance that the disease is not a disease of the eye only, not an accidental blindness such as we examined in our first group, but it is a disease of the whole body, and the damage to the eye is only one of the outward and visible signs of an inward and constitutional perversion.

It will be clear then that we have to deal with an altogether different mental status in the subjects of this inherited disease to that found amongst the accidentally blind. In the worst cases these children are imbecile; more often they are mentally defective, hideous of physical feature, and destitute of sensibility other than the primitive senses of heat and cold, hunger and thirst; the power of imitation, that *principia* of education, may not exist for them.

Happily all are not like these; the degree of affection shades off until the taint is not recognisable save by those who are experts in such observation, and not perhaps even by these until some untoward circumstances of general health brings out the disease. But there is never a certainty that the least affected will not at some time show changes of a gross form.

These are the physical conditions, blindness is but one of them, and not the worst. Moreover, the best of these children may at any time fail in health and degenerate.

With such a gradation in condition, and such a risk of degeneration, how can we graduate our scheme of training so as to fit these unequal conditions? Frankly, we cannot do it. It seems to me that in the training of these children we should keep to the simplest and most elementary work; enough to keep them out of mischief and to give them the possibility of earning a livelihood for themselves. To push on a child marked by this fell disease because he shows a little ordinary sharpness is no kindness; to teach him fine and skilled work is no profit. The greater the push the greater the stress, the more skilled the task the more the strain of nerve, and the more nearly you bring the child to that state in which the worst features of the disease appear.

To attempt too much will be to undo all; and to train such a child for tasks of skill will, in the event of such a breakdown, leave him unskilled even in the simplest tasks.

These children should be taught the simplest and most automatic of manual work, so that at the worst they may retain some capability for its execution.

In our third group of cases—those blind by reason of congenital deformity—will be found a rough cleavage into two sections.

The first, a section of children of nearly ordinary intelligence. They are blind, or nearly so, because the eye has not been completely formed, or has been badly finished; but they are well finished elsewhere, and may be mentally well equipped. Some of these children have seemed to me quite quick-witted and of average capacity, but generally they are better described as of nearly ordinary intelligence.

The other group are those in which the growth of the eyes has ceased at an early stage, so that they are very defective; in many cases there is a bad family history of blindness, and I have seen several members of one childship similarly defective. In these children dull wits and incapable brains are the rule.

The association of ill-grown eyes and poor brains is no distant one; the retina of the eye is really a part of the brain, and a condition of development which will result in a grave defect in the growth of the eye is more likely than not to be one affecting the brain also.

These children differ greatly from those in the preceding group. Those might fail at any time; our endeavour to train them might only strain them. But with these unfinished children there is no such ever-present danger as this; we may teach them what we can. In the worst cases there will be no danger of overloading them simply because they will be incapable of receiving a load; with the better and brighter we shall be limited by the physical deformity.

The fourth group of cases is one of peculiar interest—children who are in blind schools by reason of disease of the eye—not accidental and

not strictly of inheritance or deformity. These are the extremely short-sighted—high myopes. This is no place to discuss the causes of the condition, enough that it is a disease of the eye and that the rest of the body may be healthy and the parents healthy.

Strictly speaking, most of these children are not blind at all. At their own distance they are nearly all capable of distinguishing the most minute objects. But for the purposes of ordinary school-work they are blind; and examination of the eyes by surgeons has led to their being placed in these schools lest their condition become worse by ill-judged usage of their eyes. Mentally most of them are as sharp as any school-child; some are of a peculiarly thoughtful turn of mind. Their short sight has, in a sense, isolated them from their surroundings and driven them into their own selves and into a world of their imagining. Many are exceedingly shy and sensitive, probably because to their blurred vision men and things take on so gross and monstrous a shape as to affright them.

These children are of peculiar difficulty to the teachers just because they are not blind, yet they are in blind schools, and must be taught the scheduled curriculum and learn to read and write Braille. The children learn it with ease, for they are of intelligence; but no sooner is the teacher's back turned than they bow down their heads to *see* what they must perforce read by *feel!*

This leads me to open up the point of the treatment of the *partially* blind in these schools. In examining the children I found 30 per cent. blind, 40 per cent. with some degree of perception of light, and 30 per cent. who could distinguish printed letters (of any size and at any distance). Of these last, a fair number could read and write a little, and could get about easily without any assistance. They could not be taught however in any other place than some school specially provided for them, such as these blind schools. But the point I wish to bring out is, what will these children consider themselves when they are away from school? Blind? Certainly not; only "weak-sighted." When they can see print will they restrict themselves to the limited library of Braille works, or will they ever write Braille type? I am sure they will not. My experience of the way in which myopes of extreme degree succeed in their sphere of life, even without the aid of glasses, makes me convinced that those in our schools who learn, with much care and diligence, the practice of Braille rarely continue the usage, but read and write as do other folk to the best of their powers of vision. If my observations in this matter be correct, then the schedule that compels a useless labour to these children is wanting in wisdom.

In teaching these children we ought always to keep their future in view, and train them accordingly. Their sight is defective, so they must be taught to work with their hands; and use should be second nature, so that they can work as a woman knits, with fingers only. But, if they have some useful vision, and their condition is such that the surgeon in charge not only does not inhibit the use of the eyes, but permits it, then these children should be taught to read and write by sight, and in the script that is the ordinary means of communication. Books, pens, ink and paper should not be allowed; but scrolls of large type, with letters four inches square which could be read at the distance of a yard, should be used instead of lesson-books; and writing should be

learnt with blackboard and chalk, free-arm fashion, at full stretch, in large and plain characters. By this means the partially blind would gain all the acquaintance with "letters" that would be well for them, for the most of their work should be manual labour and not literary.

The blind are likely to make much of any literary ability they possess, but the partly sighted are so diverted by their struggle to see that their field of usefulness is likely to be more in affairs than in thought. We must except the case of the myopes; but these, for the sake of their frail eyes, must be kept from reading so far as may be. Read and write they will, and with their eyes. Recognising this, I believe we shall do best for them by teaching them ordinary sighted script as the common mode of communication, and at the same time train them in such habits of self-control as will ensure the use and not the abuse of their powers. It is not the use of their eyes so much as their abuse under bad conditions which is to be feared.

There are other varieties of blindness of most interesting forms, both from physical and mental aspects, but their comparative scarcity in our schools makes it well to leave them for the broader grouping I have given.

In conclusion, I would suggest the use of a plan I have found of some value in school-work and of much help to teachers, the classification of the children in such a manner as the following:—

(1) Those children from whom we may hope for the best results of training.
(2) Those children whose training should be elementary only, and who, whether they show capacity or not, should not be permitted difficult work.
(3) Those who are likely to benefit but little by mental labour.
(4) Those who should be taught sighted script under given conditions.

This classification runs fairly with the grouping of conditions of blindness I have given. Classification is a baneful thing when it is its own end, but in practice such a sorting is a form of help which a medical officer of a blind school can give to the teacher, irrespective of his duties in the care of the physique of the children.

Dr. Friedeberger (London) said that, as the necessarily limited paper of Dr. Harman did not mention the cases of *Retinitis pigmentosa*, which, by a slow process, gradually destroys the eyesight of a certain percentage of deaf-mutes, and does lead to total blindness in addition to the sad affliction of deaf-mutism, it is necessary to draw attention to the existence of this dreadful disease in order to prevent deaf-mutes suffering from it being taught orally speech and lip-reading. It was sad to reflect that the ignorance of the head of an institution should thus be responsible for the wrong method of instruction being applied in these cases, for of course the sign of Braille script system, as far as it can be made useful, should alone be used. It is interesting to note, from a scientific standpoint, that Prof. Liebreich, of Vienna, first discovered the *Retinitis pigmentosa* in deaf-mutes; he also established the fact that there was to be found a higher percentage of these cases amongst Jewish deaf-mutes.

The Rev. St. Clare Hill, M.A. (Leatherhead), expressed on behalf of himself and those privileged to be present, hearty thanks for the very instructive paper and for the lucid explanations which had been offered by the reader. He said that the information given was extremely valuable, and would, no doubt, help in meeting many problems.

He wished to ask Dr. Harman a question in reference to the partially

blind and their instruction in reading Braille. He understood the reader to suggest that those suffering from myopia should *not* be taught blind system of reading and writing. But surely one point had been lost sight of, namely, that a fair proportion of these cases eventually become blind, and if Braille is not taught possibly they would for ever lose the only opportunity of learning a blind system of reading. Would the reader suggest a step which may possibly cause such persons to lose a golden opportunity of receiving instruction in blind systems of reading and writing?

In reply, Mr. Bishop Harman (London) said that the partially blind were a residuum for whom neither glasses to correct short sight nor operative treatment were advisable in their present state. Possible amelioration was always kept in view and attempted when justified.

There were some "partially blind" who might become "totally blind." The possibility was always kept in view; and when there was any reasonable likelihood of this following even at a remote period, the child should be taught the script of the blind. This was particularly the case with those afflicted with *Retinitis pigmentosa*, about whom Dr. Friedeberger inquired. There were ten cases in L.C.C. schools, or about 2·5 per cent. The progress of the disease was often exceedingly slow, and the time when useful vision would be lost could not be foretold. In deaf-mutes with this disease the difficulty was enormous, for if they were taught lip-reading a time would come when they would not be able to see the movements of the lips; in these cases he always recommended the teaching of finger or sign language and Braille script.

With high myopes there was by no means a certainty of ultimate blindness. Detached retina did cause blindness in some cases, but it was not nearly so frequent as some would imagine.

THE PRESENT NECESSITY FOR ATTENTION TO THE GENERAL AND SPECIAL HYGIENE OF THE BLIND.

By the Rev. St. Clare Hill, M.A.,
Principal of School for the Blind, Leatherhead.

The most superficial knowledge of the literatures of the world convinces us that the subject of hygiene has always received consideration.

The medical world has, for generations, been commendably active, but it is only during the last thirty years that the subject of hygiene has been systematically treated by the teachers in our schools.

The results of those thirty years of conscientious labour have been remarkable, the number of deaths from certain diseases is strikingly reduced, many visitations are changed to those of a milder form, and a few are on the point of disappearing.

Systematic teaching in our schools has spread such information as is essential to healthy living.

It has occurred to those interested in the blind that the time has come for the extension of the knowledge of the laws of health to that afflicted and seriously handicapped class of society. At the present moment there is no book published in blind type on this subject, and I believe that in no blind school in the United Kingdom is the subject of hygiene treated as a part of the scheme of education. The result is that,

beyond certain casual information, a blind youth enters upon the battle of life handicapped, not only by his infirmity, but also by the absence of that almost indispensable necessity, accurate knowledge of the laws of health and of the daily requirements of mind and body.

And further, if there is any difference in this matter between a blind and a sighted child, the necessity is greater with the former, because sight is frequently an important correcting influence. For instance, the sight of a dirty skin suggests washing; an ill-shapen or deformed body suggests care; the pale face of one who habitually lives in a close atmosphere suggests outdoor exercise. There are many ways in which unsatisfactory conditions are corrected through the appearance of the sufferer. I therefore desire to urge that the teaching of the principles of hygiene to the blind is a pressing need and of even greater importance than to the sighted.

The title of the paper refers to the *present* necessity for attention to the general and special hygiene of the blind.

The word "present" is used because it is believed that *now* the blind have, in consequence of the effective and salutary working of the Education Act of 1893, arrived at such a stage that they can largely benefit from such instruction, and that further improvement in the physique and general conditions of health is being severely handicapped through the lack of scientific knowledge of the laws of health.

It must not be concluded from these remarks that the blind are generally less intelligent and less informed than the sighted. Such a conclusion would, indeed, be most erroneous. For, on the contrary, taking the two, class by class, the blind have the advantage of the sighted, largely because, in consequence of their deprivation, a greater demand is made upon the memory and the reasoning faculties. But it must never be forgotten that, by reason of a restricted literature and certain other disabilities, the blind are cut off from those sources of reliable information which are open to the sighted.

As a consequence, although the blind have a large stock of information upon subjects in general, still, for the most part, it has been collected from hearsay sources, and is thereby less accurate and less reliable.

I am therefore desirous of stating there is room at the present moment for the publication of an elementary treatise on the subject of hygiene, printed in blind type, so that it may be read and carefully studied.

The well-to-do blind are in close and continual touch with the influences at work in society for better housing, healthier sanitation and more satisfactory hygienic conditions of life. They are removed from the inconveniences and misfortunes of bad ventilation, inadequate accommodation, and inability to provide proper clothing and suitable food. Again, their friends make self-denying efforts to secure for them healthy and pleasant occupations and regular and acceptable exercise. In short, the well-to-do blind usually live under most favourable conditions, carefully watched over by affectionate relations and friends, so that generally almost ideal conditions of life are possible without any serious effort.

The lot of the majority of the blind is widely different. Too often our sightless brother is isolated and has to manage for himself or fall away into a mode of living the opposite of what is hoped for by the disciples of the professors of hygiene. His early life is frequently but a period of neglect, because the parent has to attend to the duties of his daily avoca-

tion and frequently the first taste of efficient supervision and care only comes to him when he enters an institution or a school.

Since the duty of building up a healthy mind and body in our blind so frequently falls upon institutions and schools, it is of the greatest importance that the authorities, whose business it is to provide for their management, shall be keenly alive to their responsibilities.

And what do we find ?

Twenty-five years ago nearly every workshop provided for blind people was a disgrace inasmuch as it failed to fulfil the most elementary requirements of the laws of health. It was dark, ill ventilated, oftentimes underground, and not infrequently cold and damp. The blind artisan, whose vitality is lower than that of his sighted friend, was permitted to further reduce the unsatisfactory conditions of the apartment by keeping the windows closed in order to raise the temperature. Even nowadays there remains a relict of the same error, for it is quite a characteristic of these people to persist in closing a window. Possibly this arises from a condition of lower vitality produced by the difficulty of obtaining vigorous exercise.

Again, twenty-five years ago, it was deemed unnecessary to supply light to a blind person. Wherever light was provided it was said to be for the use of the sighted foreman or for the purposes of supervision. In the course of my duties as Government inspector, I have had occasions to visit most of the institutions for the blind in Europe, and I observed that while some of the results of instruction were highly satisfactory, reflecting the greatest credit upon those in charge, still, speaking generally, only in the modern teachers did I find a desire for abundant light and air. Yet a plant, which does not depend upon eyesight, requires both of these for its perfect growth. I could name several institutions where pupils spend many hours a day in semi-darkness ; and in two schools I found men working all day long in an apartment without a window and without any effective provision for ventilation.

Again, at the present time, many institutions have extremely limited grounds for exercise and play. It has been argued that the blind can take part in so few games that a small yard is therefore sufficient for the purpose of sitting out-of-doors. But the air of a yard becomes vitiated, and consequently unfitted to the requirements of those sent out to " take the air." Besides, there are several games in which the young blind can and do take part, and, moreover, in which they secure a great deal of pleasure. Skipping, running and jumping are quite easily possible. A little mechanical contrivance is sometimes necessary. Nearly all the benefits obtained by a sighted person in many games and pastimes are possible to a blind child, if only a proper space is provided, supplemented by a small amount of ingenuity on the part of the instructor.

Again, several institutions are still without a gymnasium, and even where they are provided they are frequently grossly inadequate. Of forty schools for the education of blind children in England only six have a *large* gymnasium. The blind are necessarily much restricted in the ways in which they can take exercise. They cannot, to any large extent, join in football, cricket, and many other games in which youth takes its pleasures, while securing bodily exercise, but they can join in even the more difficult feats and gyrations of the gymnasium.

And, still further, in most of the schools where a gymnasium is pro-

vided, the pupils spend only an hour or two per week, such times as the drill-sergeant has been appointed to attend. As an answer to my suggestion that lessons should be more frequent, economy has been urged; and when I have proposed that the pupils should voluntarily visit the gymnasium, the question of suitable supervision has proved an insuperable difficulty. Females are often not permitted to receive this kind of instruction. But since the blind are cut off from so many opportunities of developing their physique, a special effort should be made to grant them facilities to use daily that form of exercise in which it is proved they can readily take part. And surely there is as much reason for females to come under this particular kind of instruction as males.

We have all noticed how badly blind people walk, and possibly have been impressed by their unsightly gait. They never will walk properly, with erect body and with fearless, confident steps until they have been taught so to do.

A properly organised home or institution for the blind should be controlled by those who have reflected upon the necessity of recognising, on physiological grounds, the demands of the sensorial machinery of the body; that only by exercise, cleanliness, diet, pure air, warmth, proper clothing, abundant light, and instruction in walking and running can the individual grow as he should in health, strength and vitality.

The school curriculum should include regular weekly lessons on clothing, food, habitation, occupations, sanitation, and questions affecting personal hygiene. By a carefully devised course of instruction the blind person should be taught how to breathe properly, the imperative necessity of personal cleanliness, the advantage of an upright gait, the power of grasping long and short distances, the capability of managing for himself all matters connected with his own well-being.

And one other word in reference to institutions, and that a crying want of these times. The parents of our poorer blind have to take care not to fall behind in the competition of earning a living. While this competition is proceeding, think for a moment what is happening day after day to the blind babe. The mother has regularly to attend to her work in order to secure even a pittance of a living wage. The baby must be left at home, oftentimes in the charge of a small brother or sister, or, if not, in the care of some hired person who has but the smallest interest in its well-being. The almost inevitable result is that the ordinary wants of the child are neglected, and certainly the smallest attention is given to the many hygienic considerations which the offspring of a wealthy person is receiving hourly. For the salvation of such an infant the only scheme I can think of is the establishment of a *crèche*, where a suitably skilled motherly person would attend to the child's ever-present needs. It could be conducted at small cost, and would be a life-long benefit to many afflicted human creatures. These *crèches* should be attached to existing blind institutions and might be made almost self-supporting.

The same spirit of healthy surroundings should be carefully and regularly insisted upon by the managers of those factories where the blind work after the school-days have passed away. The rooms should be airy, light, warm, and well ventilated. They should be patterns of perfect sanitation, and attention should be given to that which is often indifferently supplied, namely, proper and abundant accommodation for

washing. The manager could easily extend his sphere of good work by taking an active and personal interest in the homes in which his employees reside. Many evils would be avoided by a kindly visit followed up by tactful and sympathetic advice.

The blind artisan often does not know what to do with his spare evening hours; he has nowhere to go but his humble lodgings, unless it is to places which may lead him into temptation. The philanthropist can find wide scope for his energies in the endeavour to provide and maintain a special polytechnic for his blind friends, or a special department in existing polytechnics. The ordinary institution of this kind is useless in many ways to the blind, but wherever there is a colony of these afflicted people there might be established a place where could be secured healthy entertainment, instructive light literature, a gymnasium, and other means of affording opportunities for healthy mental and bodily development.

When such an institution has been called into being steps should be taken to supply a continuance of instruction in hygienic principles after the pattern, but perhaps more comprehensive in nature, of those given in the schools. To make such lectures a success they must be of a popular character, delivered by one who is capable of importing into them special interest to make them attractive and entertaining.

The object aimed at when dealing with the young or older blind is to create an ideal, and to point out both the advantages of endeavouring to approximate it, and whatever facilities towards that end may be available.

The great thing is to make him feel the pleasure of striving to realise such an ideal, so that he may be dissatisfied unless he is moving towards it. In other words, to supplement his knowledge with the will-power of desire to attain, for, after all, we cannot do more than call into existence the hope for, and point out the possiblity of obtaining, these better things.

Towards this end the general public can do a great deal in taking an interest in the concerns of this afflicted section of itself, lending a helping hand of brotherly love, kindly consideration and tactful advice.

I do not think I can better sum up my remarks than by saying our mind and body have been given to us to take care of as well as we possibly can. We are entrusted with these two wonderful gifts, and we altogether fail in our duty unless we not only take the greatest care of them ourselves, but also see that we give evidence of a genuine desire to assist our less fortunate brother in a similar discharge of his personal responsibility.

THE HYGIENE OF THE TEETH AND MOUTH IN THE SCHOOLS FOR THE DEAF.

By G. Ferreri, Rome.

It is well known that for some time past the anthropological examination of the deaf has shown that one of the most frequent signs of degeneration is certainly that of a defective dentition.

There may be many causes for this, but it is only of interest to us to

know that the degenerative symptom mentioned is connected and associated with all the others comprehended in deaf-mutism.

Therefore, without taking into account the more serious cases of malformation of the palate and dental system, in which treatment, operations and special arrangements are also necessary, I desire to call the attention of the members of this Congress to the necessity of a particular hygiene for the school of the deaf.

As long as the deaf were only taught by means of the mimic and the manual alphabet, the neglect of the hygienic care of the mouth and teeth could be excused. In general, these did not come directly under the observation of the teacher. But after the generalisation of the oral method, this neglect became culpable, and no excuse can be found for it.

The oral teaching of the deaf not only places the mouth and teeth under the continual observation of the teacher, but also frequently causes the teacher to discover in the defects of structure and growth of the various parts of the mouth the cause of many obstacles in learning to speak, and not a little difficulty in obtaining a fluent and intelligible utterance.

The practical consequence of such conditions cannot be other than to procure an accurate and scrupulous hygiene of the teeth and mouth of the deaf-mute.

Everyone knows how great is the importance for physiological ends of the mouth in general and of the teeth in particular. Hence it is not necessary for me to call attention to it. I will therefore limit myself to the function of the mouth and dental system as integral parts of the organs of speech.

Leaving aside the relation of the hygiene of the mouth and teeth to vegetative life, I will only speak of those which fall under our observation in teaching articulation.

Whoever knows even superficially the process of the development of the second set of teeth also knows that one of the causes of dental anomalies acquired in infancy must be attributed to the irregular breathing through the mouth, on account of the insufficiency of the nose, which, in its turn, signifies a diminution of hæmatosis (oxygenation of the blood).

A careful comparison between hearing and deaf children has convinced me that breathing through the mouth—a common defect among the generality of deaf-mutes in infancy—is the cause of many anomalies, among which should be noted the following: irregularity in rhythmic breathing; deficient development of the teeth, with tendency to decay; the elevation of the upper lip, and the consequent drawing down of the lower eyelid. From this comes that mass of alterations in the skull, teeth and muscles, which so often gives the deaf-mute a dull and idiotic aspect.

It would therefore be an experiment of the greatest interest to put the deaf child at a tender age, not under instruction, but only under a physical education based exclusively on special rules of hygiene. This should be of both respiratory and muscular gymnastic exercises. The first should be directed above all to regulate the breathing through the nose, for it must be admitted, according to the experimental studies of Dr. P. J. Mink, that the natural way of normal breathing is through the nose.

The second exercise should correct and hinder the many defects of development and the noted anomaly of gait in the deaf.

Medicine and domestic hygiene should carry to the kindergarten and

to the institutes of the deaf all their prophylactic and therapeutic expedients. In fact, the first and greatest reason for having the kindergarten as well as the boarding-schools is that of providing all the hygienic treatment which deaf children are in such need of, and which, from their conditions of constitution and surroundings, cannot be received at home.

Does the organisation of the schools for the deaf correspond to these needs ?

In regard to Italy, and from what I have observed in other countries, I must reply in the negative.

Notwithstanding the progress of modern school hygiene, the school for the deaf still remains far behind the school for the hearing, although, from the physical condition of its pupils, it ought to be far in advance. It is curious, for example, that in the majority of institutes for the deaf there should not be employed among the medical assistants a specialist for diseases of the ear, nose and throat, and not less strange the absence of an oculist, when one considers the value of the eyes for the deaf. It may, however, seem more natural that a dentist should be lacking among the medical assistants of an institute for the deaf, especially in Italy, where they only begin to learn the elementary rules of the hygiene of the mouth and teeth.

By this I do not mean to say that in urgent cases they do not have recourse to the dentist. This is now done everywhere. But it is exactly these urgent cases which show by their frequency and serious nature the want of a rational and constant hygiene. This is based upon the preservation, not on its opposite, the *extraction* of teeth. Now, for the schools of the deaf, a hygiene of preservation alone is not sufficient. A prophylatic hygiene is also necessary, it being possible, as is well known, to regulate previously the arrangement and growth of the permanent teeth. This is the thought I would inculcate upon the minds of the directors and teachers of the schools for the deaf. For them the responsibility of the education is increased by the greater importance of the functions which are performed in the oral cavity of their pupils.

To the arguments of a general nature which, during late years, have advised many and various hygienic measures for the individual and collective school-life of children, there may be added others of a particular nature relating to the school for the deaf.

For the sake of brevity I will only refer to the most important.

It is known that physical pain is more evident the more means the sufferer has at his disposal for expressing it. I wish that future experimenters would keep this principle in mind as to general sensibility, and sensibility to pain of deaf children, before coming to general conclusions in their researches. For me the doubt remains whether the sensibility of the deaf is less than that of normal children. For this reason it would be prudent in further researches to be attentive to the reflex mimic of pain than, as formerly, to the common expression of reaction. This principle should also be remembered by the teachers of the deaf when they have to do with children who are indifferent to study, who are inconstant because of changeable humour, and only apparently dull. In such cases one should think, first of all, of the general physical condition, and of those particular ones of respiration and phonation due to the neglect of hygienic measures. These measures are often neutralised by bad habits, such as insufficient mastication of food and unconscious deglutition of patho-

logical substances, as, for example, that of the secretions of the nasal-pharyngeal cavity, and the biting of the finger-nails. This last, like the habit of putting the finger in the mouth, can injure the regular growth of the teeth.

A special treatment should be given to the teeth in the schools for the deaf.

In a research began by me this year as to the defects of pronunciation in the elementary schools of Rome, I was much impressed by the large percentage of defects in utterance due to the period of the second dentition. In observing carefully the arrangement of the teeth and their defects in the children who pronounced badly, I ascertained that the various forms of sigmatism in a large number of children from six to eight years of age depended exclusively on the irregularity of the dentition. It is a fact ascertained by experience that in normal children, after they have accomplished their second dentition, even when no special care has been taken, many defects of pronunciation disappear little by little. The same, however, cannot happen in the case of the deaf child. We deplore instead that the pronunciation of the deaf grows worse with age. Of this phenomenon there are many and various causes, so much so as to make many lose faith in the oral method; but I do not think that I go far from the truth in asserting that the pronunciation of our pupils can be greatly improved by giving, in time, the greatest hygienic care to the teeth and mouth. To the well-known preservative and prophylactic treatment should be added in the schools for the deaf the frequent use of antiseptic mouth-washes and frequent examinations by the dentist.

By such a practice it is reasonable to hope also for a real contribution to the efforts made against infectious diseases and tuberculosis.

We know from statistics that this terrible disease is rather frequent among the deaf. It merits, therefore, our consideration.

In this regard, and to conclude with a specific example, relating particularly to the school for the deaf, I would mention that in the first work on the teaching of speech to the deaf we find a warning to which, perhaps, there has not been given due importance until now.

Juan Pablo Bonet wrote in 1620: "To prevent putting the fingers into the mouth of the pupil, in order to arrange the tongue suitably, one could make use of a tongue of leather." This advice has an important hygienic meaning, and it is strange, therefore, that in our later special literature it is little or not at all considered from the point of view of hygiene of the mouth, while so much has been said and written from the didactic point of view. Neither, it must be said, does the use of a spatula in our classes of articulation, as well as of other instruments to facilitate the manipulation of the vocal organs, agree with the elementary rules of hygiene.

In the many schools I have visited I have hardly ever found the individual use of a spatula for the mouth of each pupil, as there is for the other school objects, and as lately for the small mirror, introduced in the auricular instruction in the institute of Munich.

As moderate as I have always been in my expectations of the practical results of congresses, I should be more than satisfied if from the present one should be resolved a special recommendation for suitable school hygiene for the deaf.

THE FEEBLE-MINDED BLIND.

By Henry J. Wilson.

The subject on which I have been asked to write a paper is "The Feeble-minded Blind." The question of the best treatment for the ordinary feeble-minded person is in itself a difficult one, but when blindness is superadded, the difficulties are intensified.

The first question to be asked is what is meant by the two words "feeble-minded" and "blind." They have to be defined because they are very elastic and comprehensive terms. The former one covers the ground between those who, on the one hand, are on the verge of idiocy, and, on the other hand, are the ordinary dullards, who are only stupid and slow of comprehension. The term "blind" includes not only those who are totally blind, but also those who are highly myopic or of defective vision from some other cause. As, however, both these words have been defined by Act of Parliament, it is well to adopt such definitions. In the Elementary Education (Defective Children) Act, 1899, 62 and 63 Vict. cap. 32, the word "defective," which includes, and is therefore practically synonymous with, "feeble-minded," applies to "children not being imbecile, and not being merely dull or backward, who, by reason of mental or physical defects, are incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but are not incapable, by reason of such defect, of receiving benefit in special classes or schools." In the Elementary Education (Blind and Deaf Children) Act, 1893, 56 and 57 Vict. cap. 42, the word "blind" applies to those who are "too blind to read the ordinary school-books used by children."

The Effect of the Feeble-minded on Normal Children.—As far as can be ascertained from inquiries, the feeble-minded blind children are not very numerous, but at the same time they are a disturbing element in the ordinary schools for the blind when they are being educated there. It has been estimated that there are about 170 in England and Wales, but this estimate seems considerably under the mark. At the present time there are about twenty-six (twenty boys and six girls) who are feeble-minded out of a total of 286 blind children on the rolls of the London County Council's special schools, or, say, 9 per cent. Mr. Edward E. Allen, superintendent of the Pennsylvania Institution for the Blind, stated last year that there were in the United States of America probably about 2000 feeble-minded blind children, or, say, 17 per cent. Mentally-afflicted children are found in most of the schools for the blind, either on probation, or as ordinary pupils, and as a rule, they are taught in the same classes with the ordinary blind pupils. Whilst there are a few superintendents of schools for the blind who contend that the presence of the feeble-minded brings out the better nature of ordinary children by teaching them to help and sympathise with those who are less fortunate than themselves, still there is a preponderance of opinion that the feeble-minded blind act prejudicially on the others, and should receive special treatment in a separate institution. They require so much individual teaching and study that the normal children must of necessity often be

neglected, and suffer thereby. The ordinary children are prone to repeat and imitate the silly and often abusive and vulgar expressions of the others, and thus the whole moral tone of the school is affected and the standard of work lowered. Classes are likewise disturbed and attention constantly arrested by the eccentricities and irritability expressed in screams and otherwise by mentally-defective children, many of whom are either mischievous and destructive, or vicious, quarrelsome and spiteful, addicted to biting and dirty habits, or irresponsive to all demands for obedience and discipline. It must always be remembered that children are intensely imitative and susceptible to the influences of their environment, and that the blind are no exception, even possibly more impressionable.

Treatment of Feeble-minded Blind Children.—As previously stated, there seems to be a great need for the creation of separate residential schools where the feeble-minded can receive individual attention, and where there is special treatment by teachers specially trained for this specific purpose. It is not so much what the teacher actually teaches as the impressions tactfully made in work and play, which act as a stimulus to the child's mental betterment. The great advantage of such schools is clearly shown by the excellent results of the careful and thoughtful training given in the residential school for mentally defective blind boys under the London County Council at Stormont House, to which reference will be made later on. As, however, it is probable that there would not be a sufficient number of defective blind in any town except London to warrant the expense of opening a special school, it would be an economic advantage if the local educational authorities would combine (as they already do for the blind and deaf at Leeds and Stoke-on-Trent) and establish joint special schools in some healthy positions where defective blind children could be sent from all parts of the country. It is, however, most essential, in order to avoid any possible mistake, that children should not be sent to a special school until they have been medically examined and thoroughly tested at an ordinary school for blind children, and can be certified by a qualified medical practitioner, and also by the head-teacher of the school, as unsuitable for retention in the normal school. Examination of the defective children in the special schools should also be held periodically in order to ascertain whether any have sufficiently improved to be retransferred to the ordinary school.

The treatment of the feeble-minded must of necessity depend in many cases on the cause of the infirmity. For instance, those who have become defective from lack of proper nourishment—and there are not a few—can often be much improved by proper food, fresh air and firm discipline, although from insufficiency of brain power they may have lost physical control and contracted bad and filthy habits. It has been found in many, if not in most cases, that mental improvement follows when the child has received simple objective teaching. In fact it seems as if the germ of improvement lies in the primary sense of touch, and that by special attention in this direction at first the mental and physical powers gradually develop.

Again, constant watchfulness, patience and perseverance are essential characteristics in the special teacher, because some defectives develop slowly, and others with unexpected and startling suddenness. Mr. W. H. Illingworth, Superintendent of Henshaw's Blind Asylum, who has had con-

siderable experience in the education of the defective blind, has written me that "the mentally defective at six years of age may remain apparently in the same condition and make absolutely no apparent progress intellectually for years, and then at the age of thirteen or fourteen suddenly emerge, as it were, from a cloud and learn well, though slowly." Mr. Illingworth has kindly favoured me with the following particulars of a most remarkable case of a boy who was brought to him at the age of six. The lad was always happy when jingling a bunch of keys, but he could not talk, was dirty in his habits, and his intellect was of such a low order that it was deemed advisable to remove him to an asylum for imbeciles. When the boy was fourteen years of age his father consulted Mr. Illingworth again, who found that the lad had improved so much at the asylum that he could read and write and answer questions on most subjects rationally.

Subsequently he learned to play the violin, and his progress in this art was marked by distinct improvement in general intelligence. The most remarkable point is the extraordinary musical faculty which developed. He possesses the gift of absolute pitch in a marvellous degree, inasmuch as he can differentiate between the actual qualities of notes. That is to say, suppose a pianoforte in one room be tuned exactly and precisely half a tone lower than another pianoforte, so that the note F on the former shall be of the same pitch as E on the latter, this boy will make no mistake in naming notes struck on either piano. Further, if a person sitting at a piano, tuned high or low pitch, strikes as many keys as he can, let it be the finest chord or most ear-splitting discord, this boy will name every note struck without the smallest slip or error. Mr. Illingworth has reason to hope that the lad may become self-supporting as a pianoforte-tuner, and cites this case as an example of the value of preliminary training in a special school.

It is much to be regretted that many cases of feeble-mindedness amongst the blind are caused by the parents not knowing how to treat their blind children, and by regarding them as being, and always likely to be, useless members of society. On that account they are often kept in bed, or cooped up indoors, so as to be out of harm's way, and receive neither education nor bodily exercise unless they are fortunately unearthed by the local school attendance officer. No wonder then that when these children go to school their intellects are dulled, their strength of body enfeebled, and their minds undeveloped, and that for a time they are apparently, and for all practical purposes, feeble-minded. These and similar cases can only be dealt with in a special school, where the result of constant attention, good food, regular hours and healthy outdoor exercise will be the means of brightening their lives, and where they will be rendered happier by some employment which brings into play both the mind and fingers. The instruction necessary for teaching a trade has to be adapted to the capacity of the child, and thus many can be taught useful handicrafts, which in later years may be of material assistance in defraying the cost of maintenance in a home. Children are far happier and healthier, and more likely to improve in physique, in a residential school than at their own homes, where they do not receive the necessary care and supervision, and are often sadly neglected, or in the workhouse.

Stormont House School for Mentally Defective Blind Boys.—As the only effort to deal with this class of children in a systematic and practical manner is the most successful one at Stormont House School under the

London County Council, and as no account of feeble-minded blind children would be complete without reference to this unique school, I venture to give a short account of a visit paid there this summer. The school stands in a high, open situation in the north-east of London, and the air there was in marked contrast to that of the more crowded and central part from which I came. This fact, together with the delightful house and garden that constitute the school premises, must exercise great influence for improvement in the health and general physique of the children. Stormont House accommodates twenty residential and ten day scholars, and was opened on June 11, 1904. Miss Bryan, the head-mistress, and Mrs. Grimmett, the teacher, discharge their difficult duty with extraordinary tact, resourcefulness and intelligence. Recognising that to endeavour to educate such children on any fixed system must end only in failure, they deal with each case individually in the manner best calculated to meet its idiosyncrasy and to awaken the dormant faculty. My first visit to this school was made in January, 1905, and on my second visit on May 15th of this year, I found a remarkable change in the pupils. Instead of the dull, heavy demeanour, the uninterested look, the purposeless movement of the fingers, and the too often heard fretful wailing voice, the children had almost without exception become orderly, obedient, and, compared with what they were before, intelligent. In a word, where all was dull and irresponsive before, there was now shown an interest and a comprehension perfectly marvellous to one like myself who had seen the unpromising beginning and was cognisant of the comparatively short time in which this wonderful change had been worked. Everything possible is done to awaken the children's interest in the common things of life—the daily round of lessons, play in the garden or indoors, the objects they can learn by touch—and the almost universal change of expression from dull vacancy to a look of happiness and contentment is sufficient witness to the efficacy of the training. The most unobservant person could not fail at once to perceive the "new boy," and the marked contrast between him and the children upon whom the loving care of the teachers has had time to take effect. Once a year the children are taken to the Zoological Gardens, and great is the excitement and keen the enjoyment of this excursion, questions about the animals being quite sufficiently numerous and searching to test severely the knowledge of natural history of their teachers. When the children return home after their visit it is always a source of great amusement to them to attempt to imitate the various sounds they have heard made by the animals and birds. Simple lectures on such apparently difficult subjects as electricity, railways, etc., are also given the children, and on testing their remembrance of one or two of these lectures, I was astonished at the memory and understanding shown in the answers received. A weekly motto is given them which they repeat every morning for a week, such as "Be always kind and true, as you would have others be to you," "Try to be something in this world, and you will be something," etc., and this leaven dropped daily into the darkened mind must of itself work for good. There is more manual work than in the ordinary school, and the children are taught knitting, both by hand and on frames, chair-caning, basket and *macramé* work. They also make wool mats and little wooden trays, and are taught clay-modelling and beadwork, some of the beads being the same size as Braille dots, so as to accustom the touch to Braille

reading. Stories are told or read by the teachers in very simple language, and then they have to be retold by the children in their own language. In this way it can be ascertained how much has been understood. At first these stories were not appreciated, and there was lack of concentration, but now at least sixteen out of the twenty children listen most attentively to them, Kipling's "Jungle Tales" being special favourites. Games of the simplest character have been organised, as they bring all parts of the body into motion and require a certain amount of thought. They not only tend to get rid of the lack of movement and various peculiarities, and inculcate the habit of self-reliance and responsibility, but they are also of an educational value in encouraging order, promptitude, obedience, kindliness and a sense of honour.

Twenty-eight boys have attended this school, of whom eight have left —four for ordinary schools for the blind, one is selling tea and boot-polish, and earning on an average six shillings a week, one went to an epileptic home, and two to Darenth Asylum. Sixteen of the boys now at school are in a stage of development, whilst the remaining four show no sign of improvement at present. The extremely dirty habits to which these children are addicted through bad or neglectful home training, lack of energy or physical weakness, have in each case been corrected and overcome by firmness, by regular and careful diet in cases where weakness is shown, and by fresh air, exercise and gymnastics.

Provision for those above the age of sixteen years.—It is probable that these afflicted ones are at the present time either in workhouses where they are subject to the sneers and jeers of other inmates, or with their parents, and subject to little or no control. It seems, therefore, advisable, both in the interest of the feeble-minded themselves and of the public, that special provision should be made for the adults, and that there should be no hiatus between the treatment of the child and of the adult, so as to allow of any leakage, but that the two treatments should be connected and form one complete and compulsory system for the improvement and protection of the feeble-minded blind throughout their lives. This might be done by the State, the county and borough councils, the guardians of the poor, or private philanthropy, establishing residential institutions on the cottage-home or block system in central healthy positions. The children could then be drafted straight to the homes, where they could carry on the trades they had learnt at school, and the still necessary care and firm treatment would be continued. It is most important that the adults should be kept under restraint, because of their immoral tendencies, the men and women being housed so that there can be no possibility of intercommunication. In the homes they should be under constant medical and other supervision, should be allowed plenty of exercise in the fresh air, and should be encouraged to take part in work adapted to their respective capacities and tastes, in order to keep their minds healthily employed, and prevent time hanging heavily on their hands, so certain to have a degrading and demoralising effect on them. There should be workshops attached to the homes, with a supply of the necessary tools and materials for the use of the more capable inmates; others might profitably be employed in gardening and farming.

To sum up in brief :—

1. Feeble-minded blind children should be trained by themselves in special schools by specially trained teachers.

2. From the schools they should be drafted direct to homes provided for them.

3. The adults should be confined in homes and given constant exercise and employment.

4. There should be frequent medical inspection.

Mr. BISHOP HARMAN (London) complimented Mr. Wilson on the interest and enthusiasm he had brought to a most depressing subject. Stormont House School he knew well, and all its inmates. These children were the poorest of poor material; exceptionally one was raised to something like a useful child, but the majority could only act under constant direction. He looked upon such a school as a sorting-house only. As a school, it would not justify its heavy cost; as a place of elimination, it did. Certainly all those who were found hopelessly defective should be withdrawn from circulation for their own and the country's good. Some had suggested sterilisation. There was much to be said for it, but few who would dare undertake it; the liability to a bad reaction on the healthy was too great. But they should be housed, fed, clothed and controlled in the simplest and most economical manner. There was only a certain amount of money to go round on matters of education, and the best material should get the most of it, so that it might be as reproductive as possible.

The Rev. ST. CLARE HILL (Leatherhead) stated that one case which had been under instructon at Stormont House was now in the school at Leatherhead receiving training in a trade, and that, given favourable conditions, there was every reason to hope that he would eventually earn at least a contribution to his livelihood.

He felt that money expended on special schools was well spent, and that much had been done if only a small proportion became able to take their places as ordinary members of society.

He wished to say how entirely he agreed with the reader of the paper as to the absolute necessity for the continuance of the care of the feeble-minded blind after school age; and since the majority of such cases must eventually become chargeable to the guardians, could not those guardians be induced to provide a special home instead of permitting these defenceless blind to live out a miserable existence in the workhouse.

Such a home would then be, not a new charitable institution, but one supported by the various boards of guardians, and so the best results for money expended would be obtained.

Would the reader inform us as to the source of his figures stating the number of blind persons in England and Wales This is important, since we are informed that the census is an unreliable source in this particular.

Those interested in blind education are desirous of obtaining a workable definition, and, for all practical purposes, it is found that the following is effective: "A child shall be deemed blind when the eyesight is so defective as to render him incapable of being educated by the ordinary methods adopted in a public elementary school." The reader stated that "there are 25,317 blind people in England and Wales; but how many are there with defective eyesight? At least half a million." What proportion of this latter number cannot see sufficiently to be educated in a public elementary school? One word in reference to the last paragraph of the paper. Can any suggest a method of carrying out the idea of preventing marriage among those who are suffering from hereditary blindness?

Mr. B. P. JONES (London): Mr. Wilson has dealt in an able manner with a most difficult class of children—mentally defective blind. In London we found it impossible to deal with this class adequately in the ordinary schools for the blind. Some four years ago a home at Stormont House was opened as an experiment. Here they receive individual attention, and particular care is given to diet, physical and manual training, thus making way for mental instruction. A few improve sufficiently to return to the ordinary blind school, and all benefit considerably by the special training given; but with legislation as it now is, the efforts made seem futile, because

at the age of sixteen they are, as it were, thrown upon their own resources and miserably fail. What is sadly needed is legislation to empower the continuance of their training, and a home to shelter them the rest of their lives. Here they would at least help to provide towards their living and spend a happier life.

DEFECTIVE ARTICULATION AND ITS PREVENTION.

By the late WILLIAM VAN PRAAGH.

UNFORTUNATELY the question of defective speech has not met hitherto with the attention it deserves. Speech, that splendid gift which puts the human being above every other creature in the scheme of creation, surely deserves the greatest care we can possibly give to it, as, in the words of Goldsmith, "Speech was given to man whereby to communicate his mind," and Tennyson has said, "Sweet is every sound—sweeter thy voice."

I will now proceed to treat the matter as affecting the normal as well as the abnormal individual, starting with those whose organs are perfectly normal, but who, through bad teaching and careless training, are possessed of articulation which, in many instances, is perfectly inaudible, and in others quite faulty. Referring not alone to the uneducated classes of society, but more particularly to the middle and upper classes, it appears that during the school years teachers do not devote sufficient time, energy, and practice to the development of their pupils' vocal organs.

It is rare to meet people who really articulate properly; proper articulation being neglected in the nursery, the elementary and secondary school, and so on through all the phases of life. Speech, when perfect, is, without doubt, an immense aid to the success of barristers and actors, who depend so much upon their purity of enunciation (their clear articulation), and yet how often do we not find both clergymen and barristers whose words are almost inaudible, and also public speakers, singers, and others who have but little control over their voices.

Our little children, gifted with all their facilities, often speak indistinctly, their indistinct utterance being caused by the mismanagement of their vocal organs.

Where lies the fault? and where is the remedy? Proper respiration should be taught not only in infant schools and the ordinary elementary day-schools, but also in every college and university.

The benefits to be derived from proper training in this direction cannot be overrated. Were this training adopted in our schools, theological colleges and universities, as a general rule clergymen's sore throat would be an unheard-of complaint, and public-speakers and singers would not suffer from the breakdowns or loss of the voice. More attention should therefore be paid to voice management and voice production in our schools, both public and private. Proper lessons in speaking should be given to all children; they should be taught how to breathe, how to

enunciate sound, and how to use their vocal organs judiciously in order to produce proper articulation. Not only from a social, but also from a hygienic point of view, it is a duty to instruct both men and women how to breathe properly, and how to use their voices in order to prevent indistinct articulation, contortions of the face, mumbling, snorting, nasal speaking, and pulmonary disease.

I always advise diaphragmatical breathing as the safest and least fatiguing, and as giving the fullest power to the expulsion of air. The next thing to remember is to base one's treatment on the utterance of natural sounds. The natural sounds are generally termed "vowel sounds." My definition of a vowel sound is as follows. "The vowel sound is a natural sound produced by pure emission of 'breath,' and a consonant is a murmur or a hiss at the beginning or ending of such vowel sounds."

People, as a rule, do not open their mouths when they speak, but do so when their store of inhaled air becomes exhausted. The natural opening of the mouth should enable the thumb and first finger to be put together between the teeth. Failing to do this they slur their words by not pronouncing distinctly every word and every letter and by dropping some of the consonants, while adding others where not wanted. Nurses, parents, governesses and teachers should devote more care and time to the teaching of proper articulation, and elocutionary faults would thus be prevented by an early teaching of the proper method of how to manage the breath. More attention should be paid in elementary schools to reading aloud, and the instruction of reading should be continued throughout the school course and up to the higher stages of instruction.

Teachers of the deaf on the pure oral system have exceptional opportunities to notice the prevalent indistinct way of speaking.

Deaf people who, so to speak, hear with their eyes instead of with their ears, or who, in other words, lip-read, often find it impossible to read the faces of the people who address them, from no fault of their own, but because it is simply impossible for the most expert lip-reader to read the faces of people who speak with their jaws firmly closed.

I will now turn to defective articulation caused by organic defects, which may be either congenital or acquired.

Amongst the organic defects we have to deal with in the first instance are those caused by cleft palate and hare-lip. The upper lip may be fissured through imperfect development, and there may be more or less a decided fissure of the palate. In slight cases the uvula alone is fissured, in extreme cases the cleft extends through both the soft and hard palates as far forward as the lip and is often combined with hare-lip. Now, whatever surgical skill is brought to bear upon the healing of the fissure, or whatever comfort is afforded to the sufferer by mechanical aids, such as artificial palates, false teeth, etc., one great congenital fault remains, viz., a painfully defective articulation which, in some cases, renders the speech of the sufferers quite unintelligible, and makes them practically dumb.

Defective articulation arising from cleft palate varies immensely in its character, and the degree of variation depends upon the greater or smaller extent to which the faulty organs are affected by it.

The great trouble with which we have to contend in these, as well as in other defects of speech, is defective breathing; the air, instead of being

forcibly expelled from the mouth cavity, travels about and finds an outlet through the nose cavity. In some cases the patient cannot whistle or even puff out his cheeks, in fact the lower jaw seems to be paralysed. For such conditions proper gymnastics of the vocal organs, movements of the jaw and tongue and exercises in diaphragmatical breathing are advised. Besides the benefit which these exercises are to the articulation by forcing the sufferer to place his tongue, jaws and lips in proper positions, they very often improve the facial appearance of the sufferer. And it often occurs that the upper teeth are defective or are deficient, in which case the upper jaw must learn to do duty for the teeth, as, for example, in the production of the letters *t* and *s*.

The nasal twang so often found in people with perfect organs is the result of weak expulsion of air through the mouth cavity, in fact a certain kind of affected or lazy speaking which can also be dealt with by forcible and proper breathing exercises. Nasal speaking is really lazy speaking, or speaking without sufficient breath expulsion.

The next congenital defects are caused very often by malformations such as paralysis of the muscles of the lower jaw, which produces a certain kind of lip chorea. The pupil struggles about, moves his jaw convulsively from right to left, or *vice versa*, protrudes his tongue, and is at a perfect loss to utter any sound. In cases of this kind a teacher will, in many cases, overcome the evil by teaching the child gradually to put his mouth in a perfectly quiet position, to take time, to lay the tongue flat, and to breathe properly through the nose. The use of a looking-glass in showing the pupil or patient the true position of the organs very often produces a successful result.

Another congenital speech defect is caused by twitching of the vocal organs. Stuttering and stammering (terms which are indiscriminately used) are extremely different in their nature and character, and in order to explain the difference I will use a definition which I adopted some thirty-five years ago, viz., " A stammerer does not know *how* to speak and a stutterer does not know *when* to speak." This definition will show that the causes of the defect of the stammerer are more mechanical. Stammering is caused frequently by malformation of the organs of speech, their misuse, etc., whereas the organs in the case of stuttering may be perfectly normal and its cause frequently of cerebral origin, while the stutterer has other difficulties which are not so easily overcome. Very often the two defects go hand in hand, and the stutterer stammers as well as stutters.

The unpleasant effects on, and hindrances to, a man's career caused by stuttering and stammering cannot be overrated, and, notwithstanding the amusement it may afford to the uninterested public by unfortunately being ridiculed on the stage, it is most regrettable to know that in hundreds of cases these defects have blighted many a man's career and caused incalculable mischief.

One of the most important points in the treatment of cases of stuttering is to let the sufferers vocalise the consonants and dispense with their usual pronunciation. He should also be directed to open his mouth ready for the expulsion of air, as in vowel sounds. For example, a stutterer wishing to say " baby " will close his lips and make convulsions trying to say *b*. He will clench his lips trying to say *b-b-b*. Tell him to open his mouth and say the first vowel sound *a* and " baby " will then

be easily said. This vocalisation of sound has been referred to by many authors on the subject, and more especially by Wyllie. Articulation and vocalisation should be simultaneous.

It is impossible in this paper adequately to treat of every defect of speech, or to describe all the many systems employed by men who, in various countries and in various ages, have devoted their lives to this special subject. I have touched upon only a few of those defects. Every child or every adult suffering from either of those to which I have referred should, in the first instance, consult a medical man, and if any organ be faulty the necessary steps should be taken to remove such faults, such as adenoids, etc. Judicious treatment in such cases often facilitates the work of the speech expert, and it is indispensable therefore that no time should be lost in consulting a specialist for his advice.

It often occurs that the causes of the defect of stuttering are sought for in the wrong quarter, and when children are backward in speech the parents naturally consider that there must be something wrong with the throat or nose, etc., and do not anticipate that the defects are caused or can be traced to abnormal brain power, and that they would probably only yield to a careful, judicious, educational treatment.

Stammering and stuttering are more prevalent amongst men than women. Statistics on the disease do exist, but they are not very reliable. It is to be hoped that in the next census return the question may be put whether any members of the family are sufferers from speech disorders. Foreign speech experts have greater facilities in obtaining statistics in their countries on account of the existence of compulsory army service. The late Mr. Hunt gives two in a thousand.

Many other minor defects, such as lisping, thick speaking, the want of ability to pronounce certain letters, such as the *u* in French or the *g*, *ch* in German, etc., can easily be remedied by an expert teacher. Lisping is caused by putting the tongue between the teeth, and is usually remedied by placing the tongue flat with a spatula.

I must now add a word as to the articulation taught to deaf children. The deaf child is taught articulation in a different way to the hearing. He imitates sound by sight and touch. The articulation of a deaf child can be and ought to be much more perfect than it is now in a good many instances. In my opinion this imperfection is caused by the teachers of the deaf not continuing the breathing exercises throughout the whole course of their instruction.

In schools for the deaf articulation is a special subject in the junior classes, and as soon as the child is able to articulate to the teacher's satisfaction he or she is anxious, and naturally so, to give the child a proper vocabulary. The teacher starts by teaching language, but very often neglects the early articulation exercises, including reading aloud, which ought to be continued during the whole course of the child's instruction, for this would lead to far better speech or articulation in our schools for the deaf than there exists at present.

The feeble-minded child does not speak well because it lacks the mental power to do so. There is no doubt that in some cases of feeble-mindedness proper articulation is out of the question, simply because there is no power of retention. The feeble-minded child forgets the sound, and therefore the teacher requires energy, power, patience and perseverance to teach the most elementary sounds. Such teachers ought

to be trained in training colleges for teachers of the deaf, as, like teachers of the deaf, they must know how to teach articulation and language properly.

We have all learned to speak by imitation, and therefore good speech entirely depends upon having perfect examples to copy. It is therefore of the utmost importance that the educators of our speech in early days should themselves be good speakers, and hence, too, the necessity of being careful in the selection of nurses. Elementary teachers should also articulate faultlessly so as to set their pupils a high standard of speaking. They also should be able to hear acutely, and thus to distinguish the faulty articulation of their pupils.

The usual difficulties we meet with daily are that people run their words one into another, and, as a rule, speak too fast. My advice is, speak slowly and calmly. Know what you are going to say and talk about. Be sparing with the breath that comes out of your body. Always vocalise the sounds ; study the position of the vowels in the mouth. After inhaling do not accentuate the consonant but the vowel sound. Proceed from the first vowel sound in the sentence, combine the whole sentence as if it were one word, and always try to get a pure vowel sounding voice.

I may recommend for study on the subject an article by Dr. Guillaume in the " Dictionnaire Encyclopédique des Sciences Médicales " ; Dr. Kussmaul, " Die Störungen der Sprache " ; Dr. Klencke, Dr. Gutzman, Dr. Wyllie, Dr. Coen, and many others.

At the beginning of this paper parents and tecahers were advised to attend to proper speaking in the nursery, in the home, in the school, and in the advanced educational establishments. I further advise the authorities to start classes for the proper treatment of speech sufferers, under the management of speech specialists, such classes having been in existence in many towns abroad for some years past with beneficial results.

THE DEFINITION OF BLINDNESS IN CHILDREN, ITS CAUSES AND PREVENTION.

By Adolph Bronner, M.D.,
Senior Surgeon, Bradford Royal Eye and Ear Hospital.

The subject which I have the honour of introducing to you is a very large and comprehensive one. The space at my disposal is very limited, and the statistics which are generally submitted when discussing this subject are old and well known. I intend, therefore, dealing with the question from a purely practical and medical point of view.

The definition of blindness, as generally accepted, is that the vision of both eyes is so bad, that the patient cannot see well enough to find his way about in daytime, or count his fingers at twelve inches. Even adopting this very narrow point of view, we find that in 1901 there were

no less than 25,317 blind people in England and Wales, or 771 to every million of the population. These figures are not very accurate, as there are a large number of blind persons who do not acknowledge that they are blind, and, on the other hand, a fair number who are blind, but whose vision could be improved by operation or treatment. Of children under fifteen years, 423 out of every million of that age are blind. But I think that in dealing with this very important question we should not only include the blind, but also all children who suffer from defective eyesight, certainly those who do not see well enough to read ordinary school books. If this were done, the numbers would be very much larger. And, surely, from a practical point of view, a child who cannot see to read is nearly as badly off as a child who is quite blind. I should suggest that some universal standard of defining the various degrees of weak-sight be adopted for all countries, so that our statistics may be of a uniform nature. Vision of 6/9 to 6/12 to be called " fair sight," 6/18 to 6/24 " weak sight," 6/36 to 1/60 " bad sight," and " less than 1/60 " blind. It would then be easy to divide the children into different classes for teaching purposes. At present there are generally only two classes, for the normal-sighted and for the blind. There certainly ought to be at least one intermediate class for these children who are not blind, but can see a little. In time some of these could be drafted into the first class, and some into the third, or blind class.

Most cases of blindness in children are due to disease, about 80 per cent. Magnus examined 3,206 blind children and found that in 17 per cent. the blindness was due to congenital disease or malformation of the eyes, mostly hereditary or due to congenital syphilis ; in 33 per cent. to diseases of the eyes, including 23·5 per cent. which were caused by purulent ophthalmia ; in 8 per cent. to trauma ; while in 33 per cent. it was the result of some general disease which had affected the eyes ; in 7·5 per cent. to small-pox. Roughly speaking, 8–10 per cent. are due to congenital syphilis. Cases of trachoma, or granular lids, are very rare in this country. Harman could only find five cases in 70,000 English children. For many years, 1859 to 1900, contagious conjunctivitis was very prevalent in the Hanwell schools, and caused many cases of blindness. This was, however, stamped out by the untiring energy of Dr. Stephenson.

These statistics only include children who are quite blind, and no notice is taken of those with defective eyesight, or who are blind on one eye only. Thus, those cases of progressive short-sight, which are so often met with in school children, cases of ulceration and disease of the cornea, which are so very common and cause defective eyesight, and many others, are not included. There are 25,317 blind people in England, but how many are there with defective eyesight ? At least half a million. Even to non-medical men, these figures are appalling, and one naturally asks, cannot something be done to prevent so many unfortunate people from becoming weak-sighted or blind ?

Cohn and others have examined 1,000 blind people, and assert that in about 40 per cent. of these, the blindness could have been prevented. That means that there are more than 12,000 blind people in England to-day who need not be blind, but who should be able to see as well as you or I. And tens of thousands who are suffering from defective eyesight which could have been prevented.

1. Congenital Blindness.

Congenital blindness could, to a great extent, be avoided, if persons suffering from hereditary diseases of the eye, chiefly cataract, optic atrophy, and retinitis pigmentosa, were not allowed to marry. When both parents are born blind, often all the children and their offspring become blind. In Bradford there is a family of blind parents with five blind children, all of whom are in the workhouse. A large number of cases of congenital blindness are due to syphilis, and many cases of blindness which occur in early childhood are caused by the same disease. These could, to some extent, be avoided, if every case of syphilis were treated for two years, and not allowed to marry during that time. An American physician has recently advocated State regulation of marriage, through a Board of Guardians. He predicts that if this is not done, " Americans will in time be chiefly idiots and imbeciles."

2. Infantile Purulent Ophthalmia.

Purulent ophthalmia of infants is a very common cause of blindness. No less than 23·5 per cent. of all cases of blindness in children, according to Magnus, are due to this disease, and 72 per cent. of all cases under one year of age. It is an inflammation of the inner part of the lids, characterised by a copious creamy discharge with swelling of the eyelids. It causes ulceration of the cornea (transparent front part of the eye), with consequent opacity, or perforation and complete loss of the eye. It is due to direct infection at the time of birth, or at the dirty hands of the midwife, and caused by a germ called the gonococcus of Neisser. Fortunately it is not as common as it used to be. Formerly 30 to 50 per cent. of all babies, at least in the lying-in hospitals, became affected, now only 0·25 to 0·1 per cent. Thanks to improved methods of treatment, purulent ophthalmia is not nearly so dangerous as it was some years ago, when 40 to 50 per cent. of all cases became blind. Now only about 4 per cent. lose their sight, and 15 to 18 per cent. have defective vision. The best methods of treatment are, as soon as the eye becomes red or there is the slightest discharge, to inject 2 per cent. nitrate of silver drops between the opened lids, three times a day, or, better still, 10 to 20 per cent. protargol or argyrol drops every one or two hours, or peroxide of hydrogen drops, or to insufflute airol powder, and, in some severe cases, to paint the everted lids with 10 per cent. nitrate of silver ; also wash out the eyes with 1 in 3,000–5,000 perchloride of mercury lotion (warm), and with a glass irrigator, and not with a dirty sponge, as is so often done. It is very often difficult to get the drops and lotion between the lids, as these are very swollen, and it requires the help of a skilled nurse. All cases, therefore, which cannot be carefully treated at home, should be admitted into hospital at once. Most cases occur in the private practice of midwives. At last a Midwives Bill has been passed, and many of those dirty, disreputable old women who called themselves midwives have disappeared, let us hope for ever. According to the rules of the Central Midwives Board, " every midwife must decline to attend alone, and must advise that a registered medical practitioner be sent for, whenever there is inflammation to even the slightest degree of the eyes and eyelids." They, however, very frequently do not do so. Last year at the Bradford Royal Eye and Ear Hospital I saw no less

than five cases of purulent ophthalmia, in which the midwife had treated the eyes for several days and not sent for a doctor. Three of these children are now hopelessly blind. The rule should be made much more stringent, and the midwife should be obliged to send for a doctor within twelve hours, and if she neglect to do so, should be most severely punished. In America, in some States at least, they are fined up to 100 dollars, and get up to six months' hard labour. Why cannot we do this in England ?

The parents, especially the mother of the child, should be told of the great danger of this disease. Some years ago the Committee of the Bradford Royal Eye and Ear Hospital communicated with the Registrar General, drawing his attention to the prevalence and danger of purulent ophthalmia, and suggesting that every Registrar should be requested to give a printed card with instructions to every person who registered a birth.

"*Instructions Regarding New-Born Infants.*

"If the child's eyelids become red and swollen, or begin to run with matter within a few days after birth, it is to be taken to a doctor immediately. The disease is very dangerous, and if not at once treated, may destroy the sight of *both* eyes."

The reply received was very characteristic. "A similar request has been made three years ago by the Ophthalmological Society, but it is impossible to adopt the suggestion, because the registrars are not salaried officers, but are paid by fees for the registration of each birth, and cannot be asked to undertake a duty, the distribution of such cards, unless they are offered some additional fee." Thanks to the kindness of the local registrar, such cards were for some years distributed in Bradford. Similar slips have also been issued by the Committee of the Gardner's Trust for the Blind, 53, Victoria Street, Westminster. I do not know of any Trust which fulfils its duties in such an efficient manner as this Trust. Mr. Wilson, the Secretary, is always pleased to give advice or help in any matter concerning the blind, and the prevention of blindness.

As the Registrar in Bradford is no longer willing to distribute these slips, the Committee of the Hospital send some to every midwife working in the district, and also cards with special directions. These are also distributed among the out-patients of the hospital.

3. Diseases of the Eye.

A large number of cases of defective vision and blindness are due to disease of the cornea and other parts of the eye. Ulcers and inflammation of the cornea (which are very common in children), if neglected or not carefully treated, cause opacities, more or less marked. The longer the ulcer lasts and the more frequently it recurs, the more dense will the opacity become, and the more defective the sight. Every case which cannot be properly attended to at home should be at once admitted into hospital. The same applies to disease of such delicate structures as the optic nerve and retina. These require most energetic and careful treatment, and, if neglected, cause permanent blindness. If all these cases which occur in the homes of the poor (where careful nursing is often impossible) were admitted into hospital, thousands of children would be

saved from defective vision and blindness. Unfortunately, however, there is not enough accommodation in our hospitals. In the West Riding of Yorkshire, with about 3,000,000 inhabitants, there are not more than two hundred beds available for eye cases, and these are nearly all filled with operation cases. At the Bradford Royal Eye and Ear Hospital we have only forty-five beds, and draw patients from a large part of the West Riding. Last year 1,100 operations were performed, so that we had very few beds available for cases of disease.

4. Small-pox.

7·49 per cent. of the cases of blindness, according to Magnus, are due to small-pox. Before the days of vaccination 30 to 40 per cent. of all cases of blindness were caused by this awful disease. In 1901 no less than 980 cases of small-pox in children of five to thirteen years were recorded. Of the 230 children who had been vaccinated (some probably most inefficiently) only three died, whereas of the 750 who had not been vaccinated, no less than 141 died. In spite of these and many other equally convincing figures, we find that our wise Government is affording still further facilities for non-vaccination. Fanatics are allowed in and out of Parliament to abuse vaccination and incite stupid and ignorant parents not to have their children vaccinated.

5. Examination and Care of the Eyes of School Children.

We now come to the important question of the examination of the eyes of school children. The State compels all children to attend school, and it is therefore clearly also the duty of the State to see that these schools are properly conducted, and that the children are in a fit condition to make use of them. All schools should be under medical supervision, and every child should be examined to see if it is fit to attend school. Bradford was one of the first to appoint a School Board medical officer, and Dr. Kerr was elected. Unfortunately for Bradford Dr. Kerr was soon called to London as the medical officer to the London School Board. I hope that everyone present, who takes an interest in school work, reads Dr. Kerr's annual reports to the Education Committee of the London County Council. They contain most valuable and interesting information on the medical aspect of our schools.

The vision of every child should be tested as soon as it can read large letters. This can be done by the teachers. Those whose vision is less than 6/9 should be examined by the medical officer, and a register kept of all cases. The parents should then be informed that the eyes of the child are defective, and asked to send it to a doctor, or, if the parents are poor, to a hospital. According to Dr. Kerr's statistics no less than 10 per cent. of the London school children have defective eyesight. The majority of these cases require glasses. If the parents neglect to send the children to a doctor or to provide glasses for them, they should be compelled to do so. Dr. Kerr says that in London, "only the minority of these cases secure any further treatment." How different it is on the Continent! At Mannheim, of 250 children whose eyes were reported as defective, all, with the exception of nine, had been seen by a doctor within seven days. Many parents are too poor to buy glasses. These should be supplied by the local

authorities. But they refuse to do this. The result is that hundreds of children attend our schools, who cannot see well enough to profit by the teaching. In London a voluntary association has been formed, and they supply ordinary spectacles at 10*d.* a pair, about one-fourth to one-tenth of what is generally charged. It has always struck me as very absurd that medical men examine the eyes of the poor at the hospitals gratuitously, and that these patients often then fall into the hands of unscrupulous opticians, who make a larger profit on the glasses than the consultation fee of an ordinary medical man would have been. A large number of school children and others fall into the clutches of advertising quacks, who not only rob them of their money, but ruin their eyesight by supplying wrong glasses. In my opinion the best method of dealing with the children of the very poor would be, that they be examined at the schools by specially qualified medical men at the expense of the local authorities, who should also supply glasses free of charge when the parents cannot afford to pay for them.

All children with defective eyesight should be examined at least once a year, and a record of each case kept. This is especially important in cases of short sight, or myopia. Often the vision becomes rapidly worse, and special attention should be paid to these children, to see that they are supplied with proper glasses, and do not bend their heads when reading and writing. It is absolutely scandalous to see how the children sit at some of our schools when writing. They have their head down, nearly touching the desk, often supported on a hand, and held sideways. The desks are frequently most unsuitable, and the light and ventilation most defective. Luckily myopia, especially the severe form, is not very common in England. At the Bradford Royal Eye and Ear Hospital last year, out of 6,000 patients, 1,720 were far-sighted and only 582 short-sighted, and very few of these were of the progressive type.

The points to which I should particularly have liked to draw attention in this very incomplete paper are :—

1. That in the statistics of blind children we should also include those with defective sight, certainly those who cannot see well enough to read ordinary school-books, and sub-divide these cases into the following classes :—

(*a*) Fair vision up to 6/12.
(*b*) Weak vision 6/18 to 6/24.
(*c*) Bad vision or nearly blind, 6/36 to 1/60.
(*d*) Blind, 1/60 and under.

That in all large schools special classes should be formed for children with defective vision, and that they should not be taught with the blind children.

2. All midwives should be obliged to notify every case of purulent ophthalmia to a doctor within twelve hours. Should she fail to do so, her licence should be withdrawn, and she be fined not less than five pounds.

3. The parents should be warned of the great danger of purulent ophthalmia, by means of pamphlets or cards, which should be given by the registrar to every person who registers the birth of the child. The midwives should also be supplied with similar cards.

5. Greater facilities should be afforded for the practical and theoretical

teaching of ophthalmology at our medical schools, and practical and written examinations should be made compulsory.

6. Abolition of the conscience clause in the Vaccination Act. Punishment of all those who publish misleading statements on vaccination.

7. The eyes of all school children should be periodically examined by an expert. A record kept of all cases with defective vision, and these to be examined every year. Parents should be compelled to see that all such children are treated and supplied with glasses, if necessary. The poor children should be examined at the schools, and supplied with glasses free of charge.

8. Every case of reported blindness should be examined by a medical man, to see if nothing can be done to improve the vision.

9. People suffering from hereditary blindness should not be allowed to marry. No person who has had syphilis should marry for at least two years after he has contracted the disease.

Mr. Joseph Bradley (Salford) said (1) the difficulty in regard to purulent ophthalmia is not its recognition and diagnosis, but its treatment, which should be thorough and continuous, and therefore, to be efficient, it must be undertaken by skilled persons, and, preferably, taken into eye hospitals. (2) Infants in the elementary schools of large manufacturing towns have undeveloped eyes. The methods of educating these children were responsible for the more serious errors of refraction found in the higher standards. (3) The task of treating errors of refraction was an enormous one, firstly, because the number of children to be examined, and re-examined after a period, was very large; and secondly, because medical authorities had failed to insist upon the general practitioner being instructed to do his work.

Dr. Edmund M. Smith, M.O.H. (York), called attention to the optional character of the revised rules of the Central Midwives Board as to the cleansing of the eyes of the new-born, and wished that this Congress could have impressed the Board with the desirability of issuing a supplementary rule making such cleansing compulsory,—with solutions of protargol, if Dr. Bronner and other specialists deem the use of that substance by untrained midwives to be safe.

Dr. Hartley (Leeds) drew attention to the fact that many of the points raised in this discussion had been talked about at the recent annual meeting at York of the Northern Union of Blind Associations. Those he wished especially to emphasise were—

1. The earlier registration of births.
2. The compulsory notification of all cases of purulent ophthalmia.
3. The better oversight of midwives, with the help of lady health visitors.
4. The actual gradual diminution of cases of blindness from this cause.
5. The almost certainty of the *prevention* of this disease, provided proper measures were employed.
6. Some better means of testing (annually) the eyesight of all school children—of course, under the supervision of a specially appointed doctor.

Mr. Bishop Harman (London) thought some more accurate definition of blindness than that of the Education Board would be of service. Of course, it would be an arbitrary measure, and $\frac{1}{60}$ vision was as good as any.

He was glad to be able to confirm the belief that blindness from purulent ophthalmia at birth was declining. The returns from London County Council schools were as follows: 1903–4, 37 per cent.; 1903–6, 36 per cent.; 1903–7, 34 per cent. (fractions excluded). But congenital blindness had increased from 20 per cent. to 25 per cent. He strongly supported early registration of birth, as put forward by Lord Robert Cecil's Bill, as a means of diminishing purulent blindness.

Glasses for school children were objected to by many, but the best testimony to their value was the child who found them desirable. He thought if we desired to help those who could not afford to pay for glasses we must leave the matter to voluntary aid. For the schools to supply glasses would mean *none* could afford to pay. Personally, he found the greatest difficulty arose from inert or ignorant parents.

Mr. ACKERS (Gloucester) expressed himself as pleased to preside at this discussion on the blind. Though his special subject was the education of the deaf, yet, as a member of the Royal Commission on the Blind and on the Deaf, he felt a great interest in the blind.

He spoke, of course, entirely as a layman. He was very glad that the efforts of the Royal Commission had, to a great extent, succeeded in lessening the numbers of cases where sight was lost, or fatally injured, in the first few days of infant life. There have long been drastic means to prevent this cause of blindness in Germany, and he rejoiced to hear that they were extending to other countries, though he feared they would be considered too stringent in England.

There had been something said about "should" instead of "shall" in an Act dealing with this subject. As an old politician he warned all never to rest content with conditional words in Acts of Parliament. One disease in which he was especially interested was governed by "may" instead of "shall," and it took many years to get that one word altered; but when it was altered the disease was stamped out.

He was very pleased to hear the suggestion of more thorough knowledge of the eye for all medical men.

Better Statistics wanted.—At the International Conference of Teachers of the Deaf, just held at Edinburgh, an International Committee was formed to try and get all countries to agree to one form of statistics for schools and institutions for the deaf, and one form for the census. He begged to commend this to those interested in the blind.

Mr. Ackers ended by thanking Dr. Bronner, on behalf of the meeting, for his paper.

In reply, Dr. BRONNER said it was very difficult to define blindness. All persons should be considered blind who could not see well enough to read or follow any ordinary occupation. He thought that the committees of our hospitals, especially eye hospitals, could do a great deal of good to the blind and weak-sighted. At Bradford a ladies' committee had just been formed for that object. You could get ordinary glasses from one to two shillings. Why should the really poor have to pay five to six shillings? It was the duty of the committees of our hospitals to arrange these matters. They had very little else to do for the hospitals. If all midwives who neglected to report cases of purulent ophthalmia were struck off the register we should get rid of many undesirables. At present they were not punished at all. It was not advisable to open the infant's eyes before the face had been carefully washed.

Mr. ACKERS first moved a resolution of sympathy and deep regret at the death of Mr. Van Praagh (secretary of the section) with his family and the Oral Association.

This was carried unanimously.

Mr. ACKERS said that this was not the first time he had had the high honour of presiding over the Deaf section of an International Health Congress. The section had just heard the strong objections expressed by medical men to the marriages of the blind with the blind. How much more should marriages of deaf with deaf be deprecated; for many more children are born deaf than are born blind. One of the greatest difficulties in getting deaf children to school at the right age is that medical men so often recommend parents to postpone sending their children to school, giving them hopes that hearing will come, or return, or improve when the child gets stronger. So the best years are lost; and when, at last, these children reach school they are painfully handicapped; speech is more difficult and general

knowledge hardly exists. Thus they are discouraged, and all their school life are behind those of their own age who have been sent to school early. This we hear from all parts of the United Kingdom.

He said more than thirty years ago, " If we can win the medical profession we can win the day." Much is hoped for from this International Congress on School Hygiene. It is trusted that the knowledge possessed by the eminent men taking part in this Congress may permeate all ranks of the profession, and that in the future knowledge of the ear and of the education of the deaf may be required of everyone entering the medical profession.

At the end of the discussion Mr. ACKERS, from the chair, moved a hearty vote of thanks to the representatives of foreign countries present. This was carried by acclamation.

EDUCATIONAL TREATMENT OF THE DEAF IN ALL THE STAGES FROM IMPAIRED HEARING TO THE TOTALLY DEAF.

By JAMES KERR LOVE, M.D.

IN looking back over the History of the Education of the Deaf the dawn of two great facts associated with two great figures is easily distinguished. The first fact is that deafness in a child is no necessary bar to the acquisition of speech, and the demonstration of the fact was made by the Spanish monk Ponce de Leon. His pupils were the picked children of the wealthy families of Spain, and his results, so far as they are recorded, were brilliant. The modern representatives of this pioneer—the oral teachers of individual scholars, or of the very small classes of the well-to-do—produce as good results as Ponce de Leon ; but the figure of the Spanish monk first teaching speech away back in the middle of the sixteenth century must ever remain a grand and striking one.

The second fact is associated with the Abbé de l'Epée. The figure of this great single-minded man spending not only his time but his fortune in showing that the average unpicked, unselected deaf child could be taught language, and all that the use of language involves, must, in spite of the change in his method, be held as one of the most striking in the History of Education. De Leon and de l'Epée are separated by 200 years, the latter having flourished about 1750. De l'Epée's ultimate methods differed so radically from that of de Leon that the establishment of two schools and a war of methods was likely, and the teaching of Heinicke in Germany made this war inevitable.

It is not necessary for my argument that I trace the history of the 150 years from de l'Epée to our own time. It is the history of a war as inevitable as any in human affairs can well be—a war which has never ceased, which is still going on, and which could not have been settled during any part of the period I have spoken of. There were two factors awanting during all this long period which made the termination of the war of methods impossible. The first was the absence of the compulsory education of all deaf children, and the second was the absence of any clinical study of the deaf child. Until education was made compulsory

the clinical study must have been one-sided. The clinical material was picked, and, therefore, not representative, and the conclusions of the observer would have been false in spite of himself.

But the clinical observer has never seriously tackled the study of the deaf child—rather to his discredit, I think. There is, however, a great convenience about this neglect of the deaf child by the doctors—that we are not hampered by a set of false conclusions which must be got rid of before the subject proper is attacked. Not so with the teacher of the deaf. Zealous, enthusiastic, cock-sure, the teacher praised his results and condemned his neighbour's, whilst all the time the disputants were not talking about the same subject. Their classes were not representative, they were picked, not so often by the teachers as for them, and the conclusions they drew were necessarily antagonistic. But the great net of compulsory education has swept into the schools the poor deaf mute, who was till recently left out, and the whole problem is now before the teacher and the clinical observer, too.

Ragged, underfed, badly-housed children who were never within the walls of a school are now sent into the institutions. Scrofulous, syphilitic, half-blind, defective deaf children, who were thought hardly worth keeping alive, much less worth educating, must now go to school, even if they be driven to it in a municipal carriage or be led to and fro by a municipal nurse. There is no selection now in the great institutions. The whole clinical and educational problem is there for solution, and I cannot imagine modern science failing to solve this problem. And although the solution can never be associated with great figures like Ponce de Leon and de l'Epée, but rather with a great movement in which no one individuality will be recognisable, it will be as epoch-making as those associated with the great Spaniard and Frenchman.

This third epoch-making step in the education of the deaf will be "the scientific classification of the deaf child for educational purposes." It is primarily—indeed, it is entirely—a clinical question. After the classification has been made, the deaf child may be safely left to the teacher. It is part of a larger question. Recently one of the largest School Boards in Scotland appointed ten medical officers, whose duties are the medical inspection and examination of schools and school children. These gentlemen have not yet begun their work, but I have before me a summary of their duties. They are described under fifteen heads, eight of which refer to the examination of the physical and mental condition of the children, the examination of special organs, the provision and examination of special schools for defectives, the instruction of the teachers by lecture and demonstration in recognising ailments and defects, etc. In the face of a movement like this the deaf child cannot escape study even were no separate attempt being made to understand him.

And if I need further argument for the reality of an epoch-making change in the education of the deaf, I point to this great International Congress, with one of its sections devoted to the Deaf and the Blind Child.

I propose to ask your attention shortly to two points—

(1) How is the deaf child to be classified ?

(2) Where is he to be taught ?

In answering the first of these questions I shall make some contribution

to the settlement of the war of methods. In answering the second I shall contrast the day school with the institution. I do not know two questions of greater interest to those who manage the education of the deaf.

It will save my time in answering the first question if you will let me refer to a series of papers which I recently wrote as a Research under the auspices of the "Scottish Universities Carnegie Trust," and which appeared in the "Glasgow Medical Journal."[1] These have been copied into the "Teacher of the Deaf" in this country; they are appearing in the "American Association Review," and they are being translated, and will appear, in whole or in part, in some Continental journals. A hundred compulsorily-taught children were examined without selection, chiefly with regard to their remaining hearing and speech, but also with regard to their general intelligence, their eyesight, the condition of the nose and throat, etc., and all the clinical facts were considered in the light of the personal and family history of each child.

The most important questions raised in the clinical examination of deaf-mute children are these—

(1) When did the child become deaf?

(2) How much hearing has he left?

You cannot restore the child's hearing, but you can salvage what remains, and build speech thereon. If there be no hearing at all, but some unforgotten speech, you can save that, and build more speech on it.

In answer to the first question, you will find in all large schools for the deaf 5 to 10 per cent. of children who have lost their hearing at three or four up to nine or ten years of age, who have a good deal of speech left, but who have no hearing. These are the semi-mute. If you place them in a manual alphabet school, or in a combined school where speech is taught for only half an hour a day, they will lose their speech to a greater or less extent, and some of them will become quite dumb. If you look into the ears of these children you will often find the traces of the disease which has caused the deafness—scarlet fever, measles, etc.—in the form of a tympanic membrane almost all destroyed, or a discharge from the ear. They are represented in this chart by cases VI. and XI. and cases XXV. to XXX., which latter have been here drawn together for convenience; but in case XXX. the deafness came on at six years from meningitis. The tympanic membranes are quite normal, but case XXX. is the only one in this group of semi-mutes where the speech is described as poor. I do not like acquired deafness due to meningitis, for the disease sometimes damages the intelligence of the child in addition to making him stone-deaf.

The answer to the second question—"How much hearing has the child left?"—defines for us a second group amongst the deaf—the semi-deaf. Now, with the exception of the semi-mute children I have been speaking about hardly any deaf-mute child is totally deaf. But semi-deaf children hear easily, and after a little experience distinguish and repeat as speech vowels, consonants, or words which have been spoken distinctly into one or both ears. (The chart will show you how seldom deaf children are entirely devoid of hearing.) Unless, however, the hearing be within the speech-area, and be great enough in degree to enable the child to make out the human voice, as I have above described, it will be of no use in teaching. Now, the speech-area of the scale is a very limited area. It

[1] "Glasgow Medical Journal," Nov., 1906, and Jan., 1907.

extends through less than two octaves ; indeed speech, as used in teaching, and including both men's and women's voices, extends to little more than one octave. The voice as used in singing covers almost five octaves, and the human ear has a range of hearing for ten to twelve octaves. But islands of hearing outside the speech-area, however acute, are of no use in teaching, and, therefore, the human voice as used in speech, and as it may be used by every teacher in testing hearing, is the ultimate test for the discovery of these semi-deaf children. (You will see plenty of these useless-hearing islands on the chart.) The elaborate fork tests I have used, and which I have shown graphically here, are never necessary in teaching, although a more limited series of fork tests may with advantage be used. This point I shall return to shortly. But here I wish to repeat that semi-deaf children can nearly always be discovered by the teacher who uses his voice properly as a test. Now you cannot neglect the hearing of these semi-deaf children without doing them a grave injustice. They are nearly always the best scholars in the class. They exist in a larger proportion in the higher than the lower classes of every large institution. In other words, their remaining hearing is of use to them even where the teacher takes no special notice of it. Further, they not only speak better than other deaf children, but their voices are pleasanter. I have found this in all countries. In Washington and in Rome, in London and Vienna, in Dresden and New York, it is always the same. And in Munich and Vienna, where the hearing of the semi-deaf is most carefully cultivated, it is especially noticeable. Cases XXX.–XXXIII. represent the semi-deaf in the chart I show you. Now, in every country in the world you will find 15 to 20 per cent. of these semi-deaf children amongst the deaf-mutes of our institutions. Geographical position makes no difference. Along with the semi-mutes, with whom, for educational purposes, I propose to classify them, the semi-deaf form in every country about 25 per cent., or a fourth of the whole. I think these semi-mute and semi-deaf children should be taught orally. In their education no manual alphabet should be used, neither should any systematised sign-language be employed. I am not speaking of natural signs. The object in teaching these children should be to make them fit to use their voices in speech as the means of communicating with their fellows after they leave school. This may be done either in special day classes in the ordinary schools attended by hearing children, in special day schools, or in oral residential schools. It cannot be done in schools where the silent or manual alphabet is used, nor can it be well done in the so-called combined schools. The semi-deaf in the chart are cases IV.–XII., XV., XXXI., XXXII., and XXXIII.

At Nyborg, in Denmark, you see the semi-deaf separated and under oral training, as I would have him trained, and I quote from a letter of Dr. Forchhammer's, the headmaster, when I say—

" It may be said that almost all our former pupils use their speech as the essential means of communication with those around them, which statement is also corroborated through the answers in blanks which are filled up by the parochial clergyman in all towns outside Copenhagen, and returned to the deaf schools annually."

Now turn with me from these semi-deaf and semi-mute children, whom I shall for convenience call Class I., to the defective deaf child

whom I shall put into Class II. Defectives occur amongst deaf-mutes just as amongst hearing children. They occur in greater number. We have about 15 per cent. of them in the Glasgow Institution. In Dresden they have about 20 per cent. Here in London they have over 10 per cent. The percentage will vary with the standard of mentality used as a test. The percentage is not very important so long as the fact is recognised. In London here they are gathered in a separate institution at Homerton, where they can be easily studied. I have referred to them at some length elsewhere.[1] The stigmata of degeneration are seen everywhere in the school—microcephalics, almost blind children, cases of congenital syphilis, undergrown and badly-developed children are common.

In the hearing schools of this country and elsewhere these are just the children who are being separated from their fellows and put into separate classes and schools for defectives; and yet these are the children who in almost every school for the deaf in almost every country in the world are being taught alongside the semi-mute and semi-deaf, who are but little removed from the ordinary hearing child. If the defective-hearing child requires separate treatment, the defective deaf child has a much greater claim to it. He will never make a good oral pupil. The acquisition of speech by defective deaf children is practically impossible. Their presence alongside the semi-deaf and semi-mute, or even the intelligent deaf child, of whom I am about to speak, hinders the latter and does no good to themselves. Further, the educational methods applicable to the two classes are different.

You will find instances of defective deaf children scattered all through my list of 100 children. Case VII. in the chart is a decided defective; cases XVI., XIX., XX., and XXI. are examples of backward, if not defective, children, whilst cases XXXIV., XXXVIII., XLVII., LIX., LXV., LXVI., LXIX., LXXXII., LXXXVI., LXXXVIII., XCII., and XCIV. are examples from the larger list.

In these two classes I have accounted for about 40 per cent. of the deaf. I will assume that there are 60 per cent. left. These I propose to put into Class III., and to label as "the average deaf-mute." The average deaf-mute has no hearing for voice which can be turned to account. He does not show the stigmata of degeneration like the defective deaf-mute. You could not tell him from a hearing child by merely looking at him. He is a fairly intelligent child. He may be hypermetropic or myopic, or astigmatic, but all these eye defects can be pretty well corrected by proper glasses. He may be a mouth-breather, but not to much greater degree than the child of the hearing school. But his case has never been considered apart from the defective deaf-mute and the semi-deaf mute. And much of the muddle and misunderstanding attaching to the consideration of the education of the deaf and dumb would disappear if the average deaf-mute of my Class III. were first defined and then discussed by himself. I am convinced that the time is not far distant when it will be considered the inalienable right of the average deaf-mute to be taught by the oral method in the first place, and to be consigned to the silent or combined school only in the event of the experiment failing. A year, or at most two years, will suffice for the experiment. But I am also convinced that in Britain, under the

[1] "The Study of the Deaf Child," *Glasgow Medical Journal.*

present eight-years' system of education, the result will be unsatisfactory in many of the cases. The success will be in direct proportion to the length of the school period. Were it lengthened to twelve years, so that the school period might cover the years of "forgetting and undoing," as the late Minister of Education has described the years of adolescence, from fourteen to eighteen or twenty, it would be almost always a success. And this extension of the educational period would be less costly for the State than the present system, for the deaf-mute would leave his school fully equipped for the work of his life.

In the classification I have attempted I have dealt with percentages. But these figures are of secondary importance. It is a principle I am trying to establish. The percentages seem fairly true for the children at present in the Glasgow Institution, and they tally pretty well with those I have had given me in the most advanced schools on both sides of the Atlantic. But all teachers of the deaf know that the material sent them varies from year to year, and that since the introduction of the compulsory clause the children admitted to the institutions of large cities have degenerated in type. I have examined all the deaf children admitted to the Glasgow Institution for nearly a quarter of a century, and have seen a good deal of the kind of variation I allude to. But however the percentages may vary, the principle that deaf children should be scientifically classified, and that the classes should be separately taught, each according to its special need, is unalterably and finally sound.

I was asked to speak to you to-day on the bearing of hearing and speech in the deaf on systems of education, but you must not think of the deaf child in this narrow light alone. By his presence in an institution his general health and his hygienic environment are secured, but his eyes and his throat need attention. Sixty per cent. of our deaf children in Glasgow have defective eyesight, and most of them should be fitted with eyeglasses. Thirty per cent. have such well-marked post-nasal adenoids that these should be removed both in the interests of their general health and of their speech.

I now take up, and that much more briefly, the question, "Where is the deaf child to be taught?"

Although I have visited a larger number of schools for the deaf than probably any other living medical man, I am not sufficiently acquainted with the social conditions present in each different country to suggest any general rule for the adoption of the day school as against the residential institution. But I am sufficiently acquainted with the City of Glasgow to deal with the problem as it is presented to us there.

Glasgow is a city of nearly a million inhabitants, and the institution there draws its 180 deaf children about equally from the city and the west and north of Scotland. Through the kindness of Mr. Welch, the senior teacher of the Glasgow Institution, and of Mr. Wright, the officer of the School Board of Glasgow, I am able to present to you information on three points which suggest themselves in thinking of this question:

(1) How many apartments are in the houses from which the children of the Glasgow Institution are drawn?

(2) How many people occupy these houses?

(3) What is the nature of the accommodation in the homes of the children belonging to the Glasgow area proper?

Mr. Wright has visited the home of every deaf child in Glasgow in the gathering of the facts for the answer to the third question.

Mr. Welch found, from enquiries amongst the children, that five of the Glasgow children had no home, that seventy-six had homes. In these seventy-six homes there were 168 apartments, with 524 inmates, inclusive of twelve lodgers. This gives an average of 2 1-5 apartments to each home of seven inmates, an average of about three inmates to each apartment, and of about five children to each family. As one of the apartments in such small houses is always the kitchen or cooking establishment, I need hardly point out that even after the institution has relieved the home of its deaf children there is dangerous overcrowding for those that are left. Mr. Wright visited seventy-eight homes; five of these he found excellent, seven good, twenty-eight fair, and thirty-eight, or about 50 per cent., wretched. In only twelve of these seventy-eight homes has child-life a reasonable chance of remaining healthy and pure. In thirty-eight no deaf or hearing child should be left. In Glasgow, till we solve the problem of the better housing of the people, the deaf child must be taught in a residential institution; unless, indeed, the School Board not only educate the deaf child, but board him out near the school.

I found day schools, or at least day scholars, in many Continental and American cities—in Vienna, Nyborg, Schleswig, and Boston; also in Birmingham, Leeds, and in London here. In Glasgow the residential school system produces the happiest results from the most unpromising material. Poor, underfed, rickety children become strong and healthy, and the death-rate is extremely low. After a few years' residence the deaf children compare favourably in physique with the day scholars of the better-class districts of the city, and are head and shoulders above the day scholars in the hearing school of the poorer districts.[1] Such advantages could not be thrown away unless the teaching in the institutions were shown to be less successful than that in the day schools for the deaf, and not even then unless the poorer children were housed and fed by the educational authorities. In your English cities the housing conditions are better than they are in Glasgow. In Leeds, for instance, where Mr. Kirk, the headmaster of the institution, knows every home from which deaf day scholars come, that gentleman does not think the social conditions are against the day-school system; indeed, there are none of his day scholars whom he would prefer to board out. In Birmingham, Miss Longwill, of the Day School, gives much the same opinion as Mr. Kirk. In London the County Council boards out about thirty of the 500 day scholars taught. But in Scotland we have the tenement system, by which sixteen to thirty families enter by one close or opening a four or five flatted building or block of one or two-roomed houses, and the same degree of poverty under this tenement system means a much worse social and hygienic environment than it does in England.

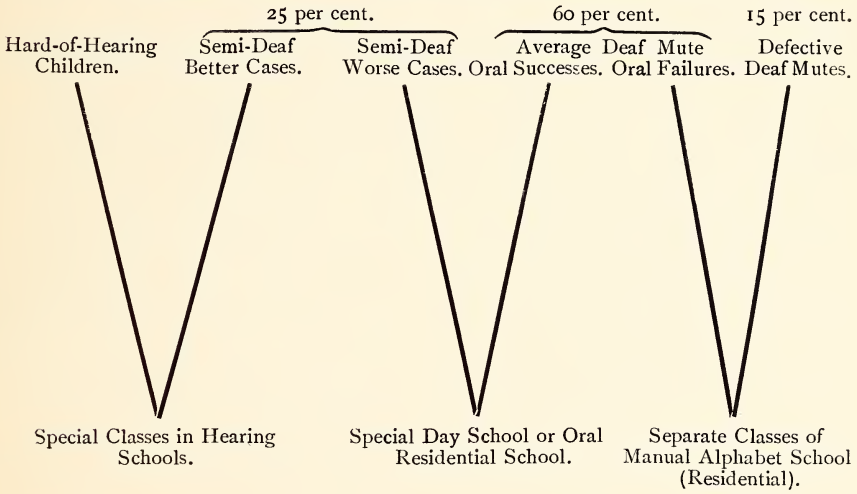
A classification of the deaf is not complete without some reference to the hard-of-hearing children attending the ordinary schools. There is no sharp line of demarcation between these and the semi-deaf. Deafness exists in every degree. But the merely hard-of-hearing may use the teaching of the hearing schools if a little special attention be given them, whereas at present there is no place for the semi-deaf but the

[1] "Deaf Mutism: a Clinical and Pathological Study." McLehose, 1896.

schools for the deaf-dumb. I do not know the number of the hard-of-hearing in the ordinary schools. I do not think the class is a very large one, although I am sure that in the aggregate hard-of-hearing children are more numerous than all the deaf-dumb put together.[1] They are, therefore, worth providing for. In large centres they should be taught in special classes of the ordinary hearing schools, and it might be well to include with them in these classes the best cases amongst the semi-deaf. This, I think, is done in Berlin, where very few semi-deaf are found in the deaf-dumb institutions.

Every deaf child should, I think, attend the highest type of school from which he is likely to derive benefit. If this principle be carried out, the hard-of-hearing should attend the day school for the hearing child, where special classes should be made for him; the semi-deaf child should attend the same class as the hard-of-hearing child, or if he fail there he should

SCHEME OF EDUCATION FOR CLASSIFIED DEAF.



attend either a special oral day school or an oral residential school. But here, in the downward grade of hearing, a sharp line must be drawn. The average deaf-mute cannot benefit from any mere modification of the methods used in hearing schools. He must either have a special day school or a residential institution. He should get a fair trial on the oral method, and if he fail he should go to a residential institution where manual alphabet-teaching may be freely used. These oral failures are

[1] At least ten times as numerous. Since the above was written, Dr. Hackwell Stewart, of Hanley, kindly sends the following note: "I examine only those children who appear to have some physical cause for backwardness in school work. Based on my last completed round of visits, my estimate is that 1·16 per cent. of the 12,200 children in the Hanley Schools have hearing defective enough to be a drawback, but not bad enough to be sent to a school for the deaf." Mr. Jones, of the London Council, has made the following enquiry for the purposes of this paper. Choosing three schools in different parts of London with an aggregate attendance of 3,300, he asked the head teachers to state the number whom they thought were backward on account of defective hearing, but not bad enough for removal to a school for the deaf, and the returns show that 49, or about 1·5 per cent., of the children came under this category of hardness of hearing. In Glasgow, therefore, there are about 1,000 hard-of-hearing children in the elementary schools; in London about 5,000.

Case.	Age of Reported Onset.	Assigned Cause.	Deaf Relatives.	REMNANTS OF HEARING. Speech Area. C_{11} 16	C_1 32	C 64	C 128	C^1 256	C^2 512	C^3 1024	C^4 2048	C^5 4096	C^6 8192	C^7 16,384	Condition of M. T.	Hearing of Speech.	Speech used.	Intonation.
I	Born deaf	.	..	Right ear Left ear			a...	e^1...	...g^2	e^3...	..... a^4	...a^5			Intact	Hears Voice	None	..
II	Born deaf	..	2 brothers					e^1...	...g^2 c^3		e^4... g^4	...g^5 ...d^5			Intact	No vowels	None	..
III	1 year	..	..		D_1...	B		....	.....c^2 f^2 g^2 e^2 b^2						Intact	Nil	Little	Fair
IV	Born deaf	..	{3 brothers deaf and dumb}			B	.....	..... g^1...	...g^2 ..... a^2	c^4	g^4 a^4				Intact	Hears A and O	{Reads sentences}	Fair
V	Born deaf	..	..						g^2...	...e^3	f^4 g^4 f^4 g^4				Intact	Nil	Fair	Fair
VI	4 years	Fall	..							c^3... g^3 nil	f^4...c^5				Intact	Nil	{Reads well}	..
VII	Born deaf	..	..	G_2... G_2...	....D_1	.. G G			e^2...	... . d^3....a^3	.....	.....		...e^6	Intact	Nil	..	..
VIII	Early	{Tubercle R facial palsy}	..		A_1	G...	....	....	....	....	....	....	..... a^5	g^6	Gone	All Vowels	Unused	..
IX	Born deaf	..	..						g^2...	d^3... a^3 ..... a^3	d^4				Normal	Nil	None	..
X	Born deaf	..	..			G... B	....	....	....	....	. ... a^4 f^4...	..... a^5			Normal	Hears "A"	{Articulates well}	Good
XI	4 years	Measles	..			G...	.....	g^1 ..... c^2	c^2	c^3	c^4	. ... a^5	d^6 ...d^7		Gone	No Vowels	Semi-mute	Good
XII	1½ years	..	..							c^3 c^3	....	..... a^5 ..... a^5			Normal	{Distinguish A and O}	{Reading good}	Good

Case.	Age of Reported Onset.	Assigned Cause.	Deaf Relatives.	REMNANTS OF HEARING. Speech Area. C11 16	C1 32	C 64	C 128	C1 256	C2 512	C3 1024	C4 2048	C5 4096	C6 8192	C7 16,384	Condition of M. T.	Hearing of Speech.	Speech used.	Intonation.
XIII	Born deaf	..	2 deaf mute brothers			A_1	G	a	c^2	c^3	..... a^3	f^4 a^4			Normal	Hears low voice	Reads fairly well	Good for low tones
XIV	2 years	..	..				G.. ...e G..		.....	.....	..... a^3	g^4...	...d^5		{R Perfor. L Normal}	{Vowels except E}	Reading fair	Good
XV	2½ years	Fever	..			A_1		a ...g^1 ..... c^2		e^2 ..	..... a^3	c^4	.....	...d^6	{R Perfor. L Chalky}	{A, O, and P}	Distinct	Good
XVI	Born deaf	..	{2 others deaf mute}						g^1... c^2	..... g^2...	...e^3 ..... a^3	b^4	...d^5		Intact	Nil	Fairly distinct	Fair
XVII	Born deaf	..	{1 cousin deaf mute}				c G...c	...a e	d^1			g^4...	...d^5		Normal	None	Poor	Poor
XVIII	Born deaf	..	..					g... a.....	.....	.....	..... a^3	. ...b^4 c^4...f^4			Normal	Slight	Fair	{High-pitched}
XIX	Born deaf	..	{2 sisters deaf mutes}				G . c	.... a	..... c^2						Normal	Doubtful	Poor	Poor
XX	10 months	Meningitis	..							g^2 g^2...c	d^3 c^3 g^3...	... b^4			L cicatrix?	None	Poor	Squeaky
XXI	Born deaf	..	{Brother and father deaf mutes}				G.... ...g			c^3 c^3					Normal	None	{Reading fair}	Fair
XXII	Born hearing	..	..			D_1...		.....	..... nil	.....	d^3				{RNormal L Gone Mastoid Op.}	None	Poor	Poor
XXIII	3 years	Scarlet	..			D...		.....	.....	.....	c^3 .... a^3	..... g^4...	d^5 c^5		{R Perfor. LScarred}	All Vowels	{Reading good}	Very fair

Case.	Age of Reported Onset.	Assigned Cause.	Deaf Relatives.	REMNANTS OF HEARING. Speech Area. C11 16 / C1 32 / C 64 / C 128 / C1 256 / C2 512 / C3 1024 / C4 2048 / C5 4096 / C6 8192 / C7 16,384	Condition of M. T.	Hearing of Speech.	Speech used.	Intonation
XXIV	Born	..	Sister deaf, cousin imbecile	g^2 ; $c^3 \ldots f^3$ / $c^3 \ldots a^3$	Normal	None	Reading fair	Very fair
XXV	5½ years	Scarlet	..	Group of cases of acquired deafness in which no residual hearing exists.	Both discharge	None	Good	Good ; semi-mute
XXVI	9 years	Scarlet	..		Chronic Otitis Media	None	Distinct	Good ; semi-mute
XXVII	9 years	Fall	..		R Normal L Retracted and red	None	Good	Good ; semi-mute
XXVIII	9 years	..	..		R much reddened	None	Distinct	Good ; semi-mute
XXIX	3 years	Scarlet Fever	..		R two cicatrices L gone	None	Moderate	Good
XXX	6 years	Meningitis	..		Normal	None	Poor	Poor
XXXI	Born deaf	..	..	Semi-deaf children. G... a^3 g^4... ...g^6 / G... ... a^6	Normal	Vowels and many monosyllables	Very good	Very good
XXXII	Born hearing	Scarlet at 2 years	..	G... a^1 a^3... c^4 ...g^5 $c^6 \ldots e^6$ / G .	RNormal L Scars	Vowels and some sentences	Very good	Very good
XXXIII	Probably born hearing	Probably Syphilis	..	c^1 ... a^4 / c^1 ... a^4	R and L destroyed	Vowels and some sentences	Very good	Very good

not necessarily defectives, but there is no antagonism between the methods adapted for their training and those used in the case of the defective deaf, and along with the latter they form, happily, not a very large class. This class, however, requires the special care only possible in a well-appointed institution.

Britain is peculiarly the country where a scientific classification should be carried out. There is no other large country where all the deaf must attend school, and which at the same time is not committed to *one* system of education. In Germany only the oral system is recognised; in America there is no compulsory education. But here, and now, is the first opportunity of settling a war of methods which has lasted for centuries, and what is of far more importance of doing what is right by the deaf child.

THE PROBLEM OF THE DEAF SCHOOL CHILD.

By MACLEOD YEARSLEY, F.R.C.S.,
Senior Surgeon to the Royal Ear Hospital.

THE problem of the deaf school child is one which may be regarded from several aspects. Much has already been written upon the best way of segregating the deaf from the normal children; they have been classified according to the degree or the curability of their deafness, and much time has been devoted to the best manner of educating those who are too greatly handicapped by their defective organs of hearing to benefit by ordinary methods. No doubt the last word has yet to be said with regard to all these matters before they can be dealt with in the most advantageous manner; but, so long as our calling of medicine lasts and the science of school hygiene progresses, there will always be last words to be spoken.

There is, however, one point of view from which the problem of the deaf school child must be regarded that is of very great importance. How are those children to be dealt with who, save for a certain degree of deafness, and especially of curable deafness, are otherwise to all intents and purposes, perfectly normal? We are agreed that appropriate special methods of education and special schools are needed for the congenital and acquired deaf-mute, those in whom deaf-mutism is associated with mental deficiency, and those who, whilst they have largely lost the sense of hearing, have still a small amount of that sense left which can be utilised, to a certain extent, by training. But what are we to do with those children in the State normal schools who are sufficiently deaf to be prevented from gaining all the advantage possible from the ordinary class teaching, and, above all, how are we to deal with those who, by reason of middle ear suppuration, are not only losing the advantages of the education afforded them, but are in actual danger of their lives.

That such cases do occur, and in no small percentage, is patent to every person of experience. Let me quote a paragraph from the London County Council Report of the Education Committee for the year ending

March 31, 1906. After describing how the medical inspection of the schools is carried out, the Report says: "Many of the children with offensive discharging ears have had this condition for months; and the parents cannot be induced to get them treated; and yet the condition is one of the most fatal of the chronic troubles of childhood. Many of the cases seen, and neglected or refused treatment by the parents, are either attending school or are excluded for months or years through parental ignorance or indifference, which at present we are helpless to prevent."

Thanks to the courtesy of my friend the Medical Officer for Education, I am able to lay before you the following statistics, showing the results of an examination of an average normal school.

A number of children were examined as to their hearing acuity by means of the whisper test, and those who could not hear a forced whisper at twenty feet were classed as subnormal; 1006 children, ranging from eight to fourteen years of age, were thus tested, of which 439 were boys and 567 were girls. 131 boys and 168 girls failed to pass the test, and were considered as subnormal. The children were then separated into groups of mouth-breathers, partial mouth-breathers, and those who did not breathe through the mouth, but had nasal respiration. In the *normal* class 96 boys and 104 girls were mouth-breathers, 24 boys and 18 girls were partial mouth-breathers, and 188 boys and 277 girls respired nasally. In the *subnormal* class, 80 boys and 80 girls were mouth-breathers, 13 boys and 11 girls were partial mouth-breathers, and 38 boys and 77 girls were nose-breathers.

As regards *discharge from the ears*, there were 2 boys and 12 girls in the *normal* class, and 22 boys and 41 girls in the *subnormal* class who had existing discharge. Besides this evidence of active mischief, with its attendant dangers to life, there were signs of former discharge (cicatrices or dry perforations in the tympanic membrane) in 178. Of these 178, 46 boys and 27 girls belonged to the *subnormal*, and 11 boys and 86 girls to the *normal* class.

No examination as to the percentage of adenoids was made, but 248 children had enlarged tonsils, namely, 65 boys and 100 girls in the *normal* class, 36 boys and 47 girls in the *subnormal* class. This means that there were 65 boys and 100 girls in a condition which predisposes to ear disease going untreated.

It is not my intention to comment upon these statistics, I merely use them to demonstrate what may be considered as the average of untreated cases of ear disease and some of the conditions predisposing thereto in a State normal school.

The text of my paper is contained in the closing sentence of the quotation, read from the London County Council Education Report: "Many of the cases are excluded through parental ignorance or indifference, which at present we are helpless to prevent." Parental ignorance and indifference form the key-note of the problem before us. Were it not for that the solution would be obvious—skilled inspection and skilled treatment. Unfortunately, although the first part, skilled inspection, is possible, the second, skilled treatment, is at present impossible, because we are as yet quite helpless to cope with parental ignorance and indifference. We can prevent a man from cruelly treating his horse or his dog, but we cannot lift a finger to save the hearing or the sight of a child whose parents wilfully disregard our advice for its welfare. My

object, therefore, is to evoke discussion by offering suggestions as to the best method of saving the children from the results of parental ignorance and indifference.

A few months ago I was chatting with a gentleman from the north of England, who had gained some experience of this matter as chairman of an education committee. Speaking quite seriously, he told me that, in his opinion, the only way out of the difficulty was to take the children into State schools and put the parents into a lethal chamber! Such a suggestion, however excellent it may be in theory, is too utopian for our present state of progress, and we must find some other means which would be equally efficacious, more practical, and less drastic.

Before making suggestions, however, it will be as well to review briefly the effect of slight deafness upon the school child.

Perfect hearing is of the highest importance in the intellectual and moral development of children. A child at school requires to be on as good a footing as its class-mates in its efforts to acquire knowledge. Its activity should be as normal as possible. When it is hampered by deficient hearing or deficient sight it is immediately at a natural and obvious disadvantage. In exceptional cases this disadvantage may be counterbalanced by especial intellectual brilliancy, but such rare instances cannot be taken into consideration when discussing the average child. The usual result is that the child inevitably falls below the standard set by its class-mates and gravitates to the bottom of the class. Statistics show that it is usually among the children at the tail of the class that deficient hearing is found, and, further, that the worse the hearing the lower the child stands in the class-list.

Now these are the cases that require recognition. These are the children that want help. The mentally deficient, the deaf-mute and the very deaf are now adequately catered for in special schools, but we are not giving the attention that is needed to the cases of slight deafness that are to be found in fair numbers in our normal schools, and to those cases whose lives are in danger from chronic suppuration. It too often happens that the inaptitude shown by these poor children is put down to anything rather than its true cause. It is called "mental incapacity," or, worse still, "inattention." As a result, the children are unjustly punished or else they are allowed to become wastrels, so to continue through life. Even mothers of the better class, usually so keen in their observation of their own children, will overlook slight deafness and call it "inattention."

The normal child, properly fed and cared for, should have (due allowance being made for family peculiarities) an active mind and be keenly alive to the acquisition of all knowledge which interests it. Inattention, or the want of proper interest in its surroundings, when habitually exhibited, always means one of two things: mental incapacity or deafness. The two are easily distinguishable, and there should be no difficulty in determining which condition is responsible for habitual inattention. If it be slight deafness, the child suffers great disadvantage from it in class. He experiences difficulty in following the teacher's explanations sufficiently to comprehend them, and consequently soon becomes discouraged and loses interest. The prolonged fatigue and resulting strain thus produced upon the mind necessarily weaken the latter, and the child's ineptness becomes more and more accentuated as the lessons become more advanced and more complicated.

These cases of slight deafness may be readily remedied in the vast majority of instances. Adenoids are responsible for a large percentage of all cases of ear disease. I do not think that I need go into this matter, or that I need again point out the necessity for early treatment in chronic middle-ear suppuration, with the double object of preserving life and saving hearing. My province in this paper is to suggest a means of combating parental ignorance and indifference. I would, however, urge the great importance of insisting on the care of children's ears between the ages of three and five years, and of teaching them good habits of nasal breathing, etc., especially at that period.

My suggestions may be divided into three heads :—

1. Special legislation.
2. The organisation of special lectures to parents.
3. The appointment of special officers to deal with parents.

Special Legislation.—In a country in which the good of the State is made subservient to party squabbles and the vagaries of faddists, it is difficult to suggest the passing of special laws to deal with so small a matter as the welfare of the Empire and the raising of the best type of citizen. Of course the ideal solution of the question would be the enactment of a law whereby children, whose future fitness as citizens was imperilled by parental ignorance and indifference, could be taken from them and cared for by the State. Unfortunately there is a fetish called the "liberty of the subject" which permits irresponsible, ignorant and indifferent citizens to perpetrate many things directly or indirectly harmful to the State, including the permanent disablement of their children (otherwise potential for good citizenship) by neglect. It is a fetish which permits the feeble-minded, the epileptic and the habitual criminal to marry and procreate their degenerate kind, and, until it is realised that this idol of the "liberty of the subject" is a cruel Moloch annually requiring the sacrifice of many innocents, it will bar the way of progress. There is not much hope for special legislation in this country so long as educated men give it as their opinion that it is within the right of parents to allow their children to become verminous and remain so.

It is left to us, therefore, to consider some other means of saving these unfortunates. My second suggestion is the *organisation of special lectures to parents* by competent authorities. These would, no doubt, do much good to those who attended them. But I doubt very much whether parents whose ignorance and indifference was such that they neglected their children would either be likely to attend lectures or benefit by them if they did. The majority of the parents who would take the trouble to listen to lectures designed to teach them their duty would be intelligent, worthy persons, who honestly wished to learn, and who could be reached by a simpler and less costly process.

A better result would, I think, be obtained by my third suggestion, the *appointment of special officers*. There should be appointed by the State, or by its Board of Education, or similar responsible body, an otologist whose duty it should be to examine all children referred to him by the visiting medical officers of the schools. He should report upon their condition, and his report should be communicated to the parents. A certain number of the latter would be grateful for this opportunity of doing their best for their children, and would take steps to have them adequately attended to. Those who neglected this advice should be

requested to interview the authorities, who would lay before them the serious nature of the trouble and endeavour to make them see the necessity of treatment without delay. This would reach a few, probably a very few.

The remaining parents, who would neither have their children treated nor come to discuss the matter, should be sought out by specially appointed visitors, who would endeavour to reason with them and gain them over by patient argument. This should save yet a few more children. How treatment is to be obtained, whether from hospitals or by the education medical officers, is beside the present point; what has first to be done is to make the parents allow their children to be treated.

Beyond this, in the present condition of things, I do not see how we are to go without special legislation. There will always remain a percentage of cases in which, to again quote the Medical Officer for Education, "we are helpless to prevent" the inevitable disaster which follows in the train of neglect, ignorance and indifference.

The number of cases of parental neglect will, of course, show a steady reduction the more hygiene is taught in our schools; but this method is a slow process, and it will be several generations before it can bear fruit. What we require is some immediate measure which will save the present generation of slightly deaf school children, and those with suppurating ears from future incapacity or preventible death. The saving of the former is an economy to the State, whilst the death of every State school child from curable middle ear suppuration is a crime to be laid at the door of the Government.

Mr. P. ROORDA (Holland) said the deaf children should be classified according to their faculties and qualities. Each individual child should be educated according to his needs. This is necessary, and it is also possible. If separate schools for various classes of such children cannot be built, special classes may be arranged in every school for the deaf and dumb.

In his opinion the semi-deaf should not be taught in separate classes connected with a school for the hearing, but in classes which are constantly connected with a school for the deaf. Could these two things be combined, the semi-deaf would derive the benefit they can draw from instruction.

Mr. A. HAUSEN said: Dr. Love proposes to differentiate among two classes of the semi-deaf, and to place a certain part of that group among hard-of-hearing children. The present speaker belongs to a country where provision has been made to meet the need of the special groups of the deaf-mute children, as we divide the congenital deaf into three groups, and have a special school for the semi-deaf-mute. Dr. Love wishes to go still further, as he wants to place a certain part of that group in environment more favourable for the mental development, which I can fully agree with. In visiting schools for the deaf in many countries in the world, a question has always puzzled me, viz., where are the semi-deaf? I have seen many examples, both in England and America, where hard-of-hearing children have been educated manually, which is a pity, and a sin to such children.

MARIUS DUPONT (Paris) dit qu'il appartient à une école et à un pays qui considère la question de méthode comme résolue. En France, on reconnaît à la généralité des sourds-muets le droit de jouir de la parole humaine dans la mesure où ils sont capables de l'apprendre, de la comprendre, et de s'en servir.

Si M. Dupont intervient dans la discussion, ce n'est donc pas pour discuter sur les méthodes, mais simplement pour poser deux questions au Dr. J. Kerr Love.

1. Il désirerait savoir quelle est approximativement, d'après l'estimation

du Dr. J. K. Love, la proportion des enfants qui figurent dans la catégorie des "*oral failures*," et qui seront privés de la parole ?

2. Dans les écoles où la sélection se fait d'après le degré d'intelligence des enfants, il y a, dans les sections composées de "*defective deaf-mutes*," des élèves qui, soit parce qu'ils ont un reste d'ouïe, soit parce qu'ils ont entendu et parlé, soit pour toute autre cause, présentent des dispositions pour la parole. Ceux-la aussi seront-ils condamnés au silence et à la méthode manuelle ? De ces êtres qui ne demandent qu'à parler ferez-vous des sourds-muets ?

Miss SUSANNA E. HULL (Kent) rose to express her warm thanks for the admirable papers just read. She had been engaged forty years in the work, had practised and knew the value of both the silent and speech systems. She had taken part in the exhibitions mentioned by Mr. Ackers as held in the former Health Exhibition in this country, and for many years was associated with him in promoting the speech system. No doubt, for all capable of receiving education by speech, the oral system is preferable. In days gone by many hearts had been saddened by seeing children, possessed of full powers of speech, rendered dumb by education in a silent-system school. Still there are individual cases where, through added physical defect or other causes, the speech system is not the best for those individual cases and should not be forced upon them.

It is a cause for thankfulness that in this free country the admirable system of classification so ably set forth by Dr. James Kerr Love can henceforth be carried out, and the need of every deaf child be met by the application to that child of the system most suitable to his individual need. This would indeed be a realised classification that it is to be desired shall yet be seen and imitated and carried out all over the world.

Dr. PERMEWAN (Liverpool) supported Mr. Yearsley's suggestions most heartily. There should be appointed in every large town a paid specialist to examine and, if convenient, to treat cases of ear disease in elementary school children. Further compulsory powers should be given to educational authorities. To hear the Minister of Education practically invite parents, whose children were examined, to bring actions for assault against the doctor, made one despair of the help of the Education department. The Otological Society in 1902 made recommendations to the Education department, and Dr. Permewan hoped the measure now before Parliament, defective as it was, was partly inspired by that report. The whole question was of the very first importance, and should not be passed over, while defects of vision were widely recognised and treated.

Mr. W. H. ADDISON (Deaf and Dumb Institution, Glasgow) said that the desirableness of classification of the deaf for educational purposes being admitted, the question arose how it could best be carried out. London was exceptionally situated because it contained a sufficiently large number of deaf children under one educational authority, but in the provinces it would not be so easy. He suggested that the country should be mapped out into districts, and that the educational authorities of these districts should combine forces in order effectively to deal with the education of the deaf, the blind, etc. What the teachers of Scotland called "enlarged areas" for administrative purposes were urgently needed.

The law dealing with idle and vicious parents should also be made much more drastic than it was at present. Parents who neglected or who preyed on the misfortune of their children should have those children taken absolutely out of their control ; the children should be sent to a suitable school, where they should be maintained, in part at least, by the earnings of their parents, who should be compelled to work. The liberty of the subject, in so far as it permitted parents to neglect, ill-treat or starve their children, should be greatly curtailed.

Mr. B. P. JONES (Education Offices, Victoria Embankment, London) : The whole kernel of this paper lies in the italic sentence, "*Every deaf child should attend the highest type of school from which he is likely to derive benefit.*"

In London, where we deal with over 600 deaf children, we aim at good classification, and have of late years endeavoured to classify on the lines suggested by Dr. Love and Dr. Yearsley. There is one class, however, which Dr. Love specially mentions that we have not yet adequately dealt with, that is, the hard of hearing. This we hope will be done in the near future. We have discontinued schools with one or two classes and all now comprise four, eight or more, and better grading is obtained. Children of various defects, and who cannot be educated well "orally," are sent to the special school at Homerton, where the method is adapted to the child. At thirteen years of age the boys and girls proceed to the semi-residential schools at Anerley and Oak Lodge. The separation of the elder boys and girls has been beneficial, apart from the advantage it gives for special training in subjects suitable for both. Dr. Love mentions one important point, that is, "institutions" *versus* "day-schools." I have had long experience of both, and must admit that there is much in favour of leaving the child in the care of its parents if possible. Day scholars mix with the world they will always be in, and the constant interchange with the public helps to sharpen their wits and improve their language and lip-reading. In London we have cases whose homes are unsuitable, and these are boarded out near a school. It is largely a question of educating the parents and making them feel their responsibility in the welfare of their afflicted child. In London, for some time past, the parents have been invited about once a month to visit the schools and see how the work is carried on. They thus come in touch with the teachers who are able to give them valuable advice, and the results have proved the worth of the experiment. If more of this were done throughout the country it would materially benefit both the parent and child. All children are examined by the medical officer and the superintendent before they are admitted into the London schools, and periodically afterwards.

The following resolution was moved by Mr. YEARSLEY (London), seconded by Mr. HAUSEN (Denmark), and carried unanimously:—

> "That in order to make suitable provision for those partially deaf children who could better be taught in a hearing environment, special classes should be provided, under the management of teachers qualified to teach speech and lip-reading, such classes to be in each country under special legislation affecting afflicted children."

Before the meeting closed Mr. ACKERS, from the chair, moved a hearty vote of thanks to the representatives of foreign countries present. This was carried with acclamation.

EDUCATION AND SCHOOL HYGIENE IN THE ARGENTINE REPUBLIC.

By Dr. GERMAN ANSCHUTZ.

THE Argentine Republic education is divided into three main groups, viz., primary, secondary (both normal and special), and, lastly, higher or university education.

The first two groups are the most interesting to the hygienist, and, in view of this fact, and acting on the principles adopted in the most advanced countries, such as certain parts of England, Germany, Switzerland, etc., which we have taken as our models—these two kinds of schools have been placed not merely within the sphere of pedagogic

instruction, but specially and directly under the rational care of a number of medical men who are specialists in school hygiene. Higher or university education has not so far been directly committed to the care of any special medical body. As a rule, university teaching is given in airy, well-lighted and well-ventilated rooms, with a suitable aspect, forming part of well-built institutions of recent and modern construction, where every precaution has been taken to prevent the students (who have arrived at the age of full development or a period not far removed from it) from suffering any kind of organic injury.

The medical superintendence of the primary schools is under the immediate care of the School Medical Board of the Capital, a body which acts as technical assessor to the National Council of Education. It was appointed in the year 1888 and consists of a president, a vice-president, and fourteen members who carry out the work of individual medical inspection, performing the task committed to them in the most scrupulous manner, in conformity with the most rigid scientific principles, the first and most important of their duties being the keeping of an individual sanitary record.

It is, however, a matter for regret that the number of medical experts is so small, each of them being responsible for some forty schools with more than 9,000 pupils, which is manifestly an excessive number. In Germany, for instance, a medical superintendent is assigned to every 1,000 pupils. In view of the small staff employed the personal inspection is carried out in definite groups.

This body of physicians has intervened directly in the construction of new school buildings, with the result that they have been equipped, on the whole, in accordance with the hygienic requirements suggested and prescribed by it. It has also advised that in all large schools there should be at least twenty baths for the pupils, and has insisted upon numerous suggestions as to building construction, ventilation, lighting and sanitation of the schools.

In regard to contagious and infectious diseases, the Board has issued instructions which have been circulated among all managers and school-masters. It is their duty, before the pupils go into class, to examine their hands, necks, ears, and especially their faces and heads, in order that, should they discover any pathological symptoms, they may at once send the pupil home.

Children suffering from nervous disorders, such as epilepsy, hysteria, St Vitus's dance, or nervous twitchings are isolated temporarily in order that they may not induce imitation on the part of their school fellows.

Since 1881 vaccination has been compulsory for all scholars and since 1904 for all citizens of the Argentine Republic by a special coercive Act. In the year 1905 8,012 school children were re-vaccinated.

Where contagious diseases break out in the houses of pupils attending the schools in order to prevent them from becoming vehicles of contagion the pupils are temporarily isolated after the medical officer of the school has verified the nature of the disease.

An individual sanitary record is kept of each pupil. This is examined in detail twice a year and all physiological variations observed are noted on the charts. But, owing to the limited number of the medical

staff examinations of this kind could only be carried out in the case of :

10,000	children	in the year	1902
9,800	,,	,,	1903
9,550	,,	,,	1904
7,944	,,	,,	1905

being a total of 37,295 children in four years.

All pathological changes are also noted down on these records, from which it is possible to deduce the number of backward, undergrown, and infirm children.

Thus out of 17,494 children examined, 3,921 were suffering from anæmia, blepharitis, stoppage of the ganglia, etc., indicating a debilitated physical condition. Next comes caries of the teeth, which produced so much illness owing to incomplete mastication of food. Next follow ailments of the ear, throat, and nose. Defects of refraction and curvature of the vertebral column are not particularly numerous, but, no doubt, a more extended examination would have revealed more cases.

In my country we have concerned ourselves more particularly with a psychological study of the school-child, and it has been proposed to found one establishment for intellectually backward children and various others for children who are physically weak either constitutionally or owing to overstrain in school, or as a complication of other maladies.

We already possess schools for deaf-mutes and for the blind. Idiots are boarded in specially-equipped institutions.

Seeing that, at present, it would be a difficult and very expensive business to build special educational establishments for backward pupils, it has been considered best to arrange special classes for them in certain schools, the teaching in these classes being entrusted to competent persons.

We now come to another pathological group consisting of children whose organic constitution, owing either to heredity or to acquired diseases, is not sufficiently developed to enable them to resist the physical wear and tear that they will meet on the path of life, and who, if they pursued a school course on the same lines as a healthy child, would, instead of deriving benefit from their education, be likely to suffer serious injury to health.

The plan adopted by Pastor Byron in Switzerland (in the year 1876), by Warrentrapp in Germany (in the year 1878), by Cotinett, Brisson, and Grearden in France, and afterwards by other European nations—viz., the organisation of holiday colonies for the pupils—has found its way to us also, and the gain in each pupil's weight, estimated by Warrentrapp at an average of 3lbs., and amounting in some cases to as much as 8lbs., was also realised by us when this plan was introduced in the year 1895, in which year 600 pupils were taken to Mar del Plata, a watering-place on the coast, from whence they returned at the end of three weeks, in first-rate condition, all of them having gained in weight. It has been proposed to found three preventive establishments for school children, with accommodation for 250 in each, one of them on the sea-coast, another in the plains, and the third in the mountainous country at a height of between 600 and 1,000 metres above the sea level, to which boys and girls will be sent and boarded out if they are found to be anæmic, scrofulous or neuropathic. School work will be carried on

in these establishments and the pupils will continue to receive instruction until the state of their health permits them to attend school in the capital.

In the secondary schools we have to deal with the pupil in his years of development between the ages of fourteen and twenty, a period during which various organic functions begin to increase, and for this reason we have to be especially careful that this development is carried on on correct physiological lines in the manner most adaptable to the conditions of school life.

The scholars belonging to the group of normal and special secondary schools have been placed under the special medical supervision of the School Section of the National Board of Health in accordance with a decree of the Supreme Government dated 4th November, 1904. Prior to that date they were under the Medical Board of Inspection of the Minister of Public Education, which was constituted on 12th January, 1901, so that this medical body acts independently of that entrusted with the supervision of primary schools, and deals with :—

(1) National Colleges and Normal Schools.

(2) Schools of Commerce and Industry and Professional Schools, etc., etc., kept up and subsidised by the State.

(3) Private Secondary Schools, which have availed themselves of liberty of Education Act.

(4) The boarding schools of the Capital and of the Federal States.

(5) Institutes and Lycées, Academies, and Private Schools for partial, technical, manual and mercantile instruction, Art schools, professional schools, etc., etc., in the capital and in the Federal States.

This medical body performs the following duties :—

(1) It carries out medical and physiological examinations and issues the certificates of health required for the admission of pupils and for the yearly change of enrolment.

(2) It holds facultative examinations in connection with the application and teaching of physical exercises and manual training in the National and Incorporated Colleges, with a view to their temporary suspension, their graduation, etc., etc. Acting on the observations and data thus collected it suggests such reforms and innovations as it considers desirable, and takes a part in the work of directing the physical culture of the nation.

(3) It ascertains the healthiness and hygienic conditions of the buildings and offices in which institutions applying for admittance to the benefits of the Free Education Act carry on, or ought to carry on, their functions and enquires into their fittings and furniture.

The School Section of the National Board of Health is also entrusted with the duty of making a systematic study of school diseases and their prevention, with anthropometric and psychometric research as applied to the scientific observation of infancy, as well as with the organisation of statistical and demographic records in connection with their special subjects.

Before concluding, I ought to mention that this medical inspection of secondary schools is entrusted by the National Board of Health to a staff consisting of one chief, eight medical inspectors, and one lady doctor, a very limited number, in view of the large school population, which amounted at the beginning of the present scholastic year to 48,781.

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